FREE STANDING RANGE

BASIC: FTQ307NWGX
MODEL: NE597N0PBSR
MODEL CODE: NE597N0PBSR/AA

SERVICE Manual

FREE STANDING RANGE

CONTENTS

1. Precaution
2. Product Specification
3. Disassembly and Reassembly
4. Troubleshooting
5. PCB Diagrams
6. Wiring Diagram

Refer to the service manual in the GSPN(see rear cover) for the more information.

• Contents

1. Precaution 3
1-1 Forward 3
1-2 Safety Precautions 3
1-3 Important Safety Instructions 4
1-4 Model & Serial Number Label and Tech Sheet Locations 6

2. Specifications 7
2-1 Features 7
2-2 Table of Specifications 9
2-3 Accessory 10

3. Disassembly and Reassembly 11
3-1 Removing Cover-Back Main Wire, Cover-Back Guard Wire and PCB-Main 11
3-2 Removing PCB-Sub & L.V.Trans 12
3-3 Removing Touch PCB 13
3-4 Removing Surface elements and The Ceramic Glass Cooktop 14
3-5 Replacement of the Assy-Working Coil 16
3-6 Replacement of the Assy-Induction Module 18
3-7 Removing The Latch-Door & Switch-Door Plunger 21
3-8 Removing Heater-Broil 22
3-9 Removing Heater-Bake 23
3-10 Removing Convection Element, Fan-Convection and Motor-Convection 24
3-11 Removing Lamp 25
3-12 Removing Sensor-Thermistor 26
3-13 Removing Assy-Drawer & Heater-Warming Drawer 27
3-14 Removing and Replacing Oven Door 29
3-15 Removing Handle-Door and Glass-Inner 30
3-16 Removing Gasket-Door 33
3-17 Removing The Panel-Side 34

4. Troubleshooting 35
4-1 Failure Display Codes 35
4-2 Electrical Malfunction 63

5. PCB Diagrams 72
5-1 PCB Diagrams (Main) 72
5-2 PCB Diagrams (Sub) 73
5-3 PCB Diagrams(Touch) 74

6. Wiring diagram 75
6-1 Wiring diagram 75

1. Precaution

1-1 Forward

This SAMSUNG Service Manual, “ 30” Freestanding Self-Cleaning Electric Range,” provides the technician with information on the operation and service of the Freestanding Self-Cleaning Electric Range. It is to be used as a training Service Manual. For specific information on the model being serviced, refer to the “Owner’s Manual” or “Tech Sheet” provided with the electric range.

1-2 Safety Precautions

- Repairs of the appliance should be carried out by a licensed technician only. Incorrect repairs may result in dangerous situations. If you need repairs, contact an SAMSUNG Service Center or your dealer.
- If the power cord is defective, it must be replaced by a qualified service agent with a UL listed range cord.
- Electrical leads and cables should not be allowed to touch the oven.
- Rating plate is located on the left side of storage drawer.
- The power supply of the appliance should be turned off when it is being repaired.

WARNING

- To avoid risk of severe personal injury or death, disconnect power before working/servicing on appliance to avoid electrical shock.
- When the oven operates, the interior parts will be very hot.

SAMSUNG Electronices assumes no responsibility for any repairs made on our products by anyone other than Authorized Service Technicians.

1-3 Important Safety Instructions

Read and follow all instructions before using your oven to prevent the risk of fire, electric shock, injury to person, or damage when using the range. This guide don't cover all possible conditions that may occur. For further assistance contact your service agent or manufacturer.

WARNING

This symbol will help alert you to hazards or unsafe practices which could cause serious bodily harm or death.

- Be sure your appliance is properly installed and grounded by a qualified technician.
- Do not repair or replace any part of the appliance unless specifically recommended in the manual. All other servicing should be referred to a qualified technician.
- Always disconnect power to appliance before servicing by removing the fuse or switching off the circuit breaker

WARNING

- INJURIES CAN OCCUR IF THE RANGE TIPS
- INSTALL ANTI-TIP DEVICE PACKED WITH RANGE
- FOLLOW ALL INSTALLATION INSTRUCTIONS

To reduce the risk of tipping of the range, the range must be secured by properly installed anti-tip devices. To check if the bracket is installed properly,

- Warming drawer : grasp the top rear edge of the Range and carefully attempt to tilt it forward. verify that the anti-tip devices are engaged.
- Storage drawer : Remove drawer and verify leveling leg is inserted into and fully secured by the anti-tip devices.

Refer to the installation manual for proper anti-tip bracket installation.

- Do not step, lean or sit on the doors of the range -this can cause the range to tip, resulting in burns or serious injuries.

WARNING

- **DO NOT TOUCH HEATING ELEMENTS OR INTERIOR SURFACES OF OVEN** – Heating elements may be hot even though they are dark in color. Interior surfaces of an oven become hot enough to cause burns. During and after use, do not touch, or let clothing or other flammable materials contact heating elements or interior surfaces of oven until they have had sufficient time to cool. Other surfaces of the appliance may become hot enough to cause burns – among these surfaces are oven vent openings and surfaces near these openings, oven doors, and windows of oven doors.

CAUTION

Do not store items of interest to children in cabinets above a range or on the back guard of a range – children climbing on the range to reach items could be seriously injured.

- Do Not Leave Children Alone - Children should not be left alone or unattended in area where appliance is in use. They should never be allowed to sit or stand on any part of the appliance.
- Never Use Your Appliance for Warming or Heating the Room.
- Storage in or on Appliance – Flammable materials should not be stored in an oven or near surface units. Be sure all packing materials are removed from the appliance before operating it. Keep plastics, clothes and paper away from parts of the appliance that may become hot
- Wear Proper Apparel – Loose-fitting or hanging garments should never be worn while using the appliance.
- Do Not Use Water on Grease Fires – Turn off oven to avoid spreading the flame. Smother the fire or flame by closing the door or use dry chemical, baking soda or foam- type extinguisher.
- Use Only Dry Potholders – Moist or damp potholders on hot surfaces may result in burns from steam. Do not let potholder touch hot heating elements. Do not use a towel or other bulky cloth.

WARNING

SURFACES

- **DO NOT TOUCH SURFACE UNITS OR AREAS NEAR UNITS** – Surface units may be hot even though they are dark in color. Areas near surface units may become hot enough to cause burns. During and after use, do not touch, or let clothing or other flammable materials contact surface units or areas near units until they have had sufficient time to cool. Among these areas are the cook-top and surfaces close to the cook-top.

WARNING

To avoid risk of electrical shock, personal injury, or death, make sure your range has been properly grounded and always disconnect it from main power supply before any servicing.

SURFACE COOKING UNITS

- **Use Proper Pan Size** – This appliance is equipped with one or more surface units of different sizes. Select utensils having flat bottoms large enough to cover the surface unit heating element. The use of undersized utensils will expose a portion of the heating element to direct contact and may result in ignition of clothing. Proper relationship of utensil to burner will also improve efficiency.
- **Never Leave Surface Units Unattended at High Heat Settings** – Boil overs may cause smoking and greasy spillovers may ignite.
- **Glazed Cooking Utensils** – Only certain types of glass, glass/ceramic, ceramic, earthenware, or other glazed utensils are suitable for range-top service without breaking due to the sudden change in temperature.
- **Utensil Handles Should Be Turned Inward and Not Extend Over Adjacent Surface Units** – To reduce the risk of burns, ignition of flammable materials, and spillage due to unintentional contact with the utensil, the handle of a utensil should be positioned so that it is turned inward, and does not extend over adjacent surface units.
- Be sure you know which control pads operate each surface unit. Make sure you turned on the correct surface unit.

SELF-CLEAN OVENS

- **Do Not Clean Door Gasket** – The door gasket is essential for a good seal. Care should be taken not to rub, damage, or move the gasket.
- **Do Not Use Oven Cleaners** – No commercial oven cleaner or oven liner protective coating of any kind should be used in or around any part of the oven.
- **Clean in the self-clean cycle only parts listed in this manual**. Before self-cleaning the oven, remove the broiler pan and any utensils from the oven.
- **Never keep pet birds in the kitchen** – the health of birds is extremely sensitive to the fumes released during an oven selfclean cycle. Fumes may be harmful or fatal to birds. Move birds to well-ventilated room.
- **Important Instruction** – In the event the self-clean mode “F” code goes on, or three long beeps sound, oven is malfunctioning in the self-clean mode. Turn off or disconnect appliance from power supply and have serviced by a qualified technician.

VENTILATING HOODS:

- **Clean Ventilating Hoods Frequently** – Grease should not be allowed to accumulate on hood or filter.
- **When flaming foods under the hood, turn the fan on.**

OVEN

- **Use Care When Opening Door** – Let hot air or steam escape before you remove or replace food in the oven
- **Do Not Heat Unopened Food Containers** – Build-up of pressure may cause container to burst and result in injury.
- **Keep Oven Vent Ducts Unobstructed** – the oven vent is located above the left rear surface unit. this area could become hot during oven use. Never block this vent and never place plastic or heatsensitive items on vent
- **Placement of Oven Racks** – Always place oven racks in desired location while oven is cool. If rack must be moved while oven is hot, do not let potholder contact hot heating element in oven.
- **Do Not** allow aluminum foil or meat probe to contact heating elements.

GLASS/CERAMIC COOKING SURFACES

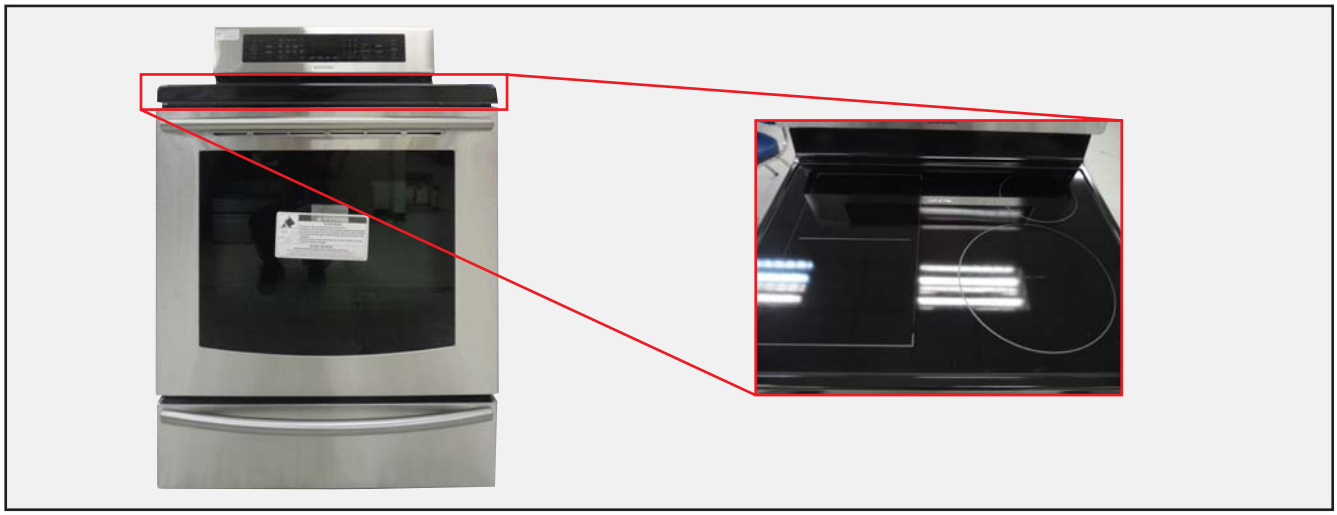
- **Do Not Cook on Broken Cook-Top** – If cook-top should break, cleaning solutions and spillovers may penetrate the broken cooktop and create a risk of electric shock. Contact a qualified technician immediately.
- **Clean Cook-Top With Caution** – If a wet sponge or cloth is used to wipe spills on a hot cooking area, be careful to avoid steam burn. Some cleaners can produce noxious fumes if applied to a hot surface.

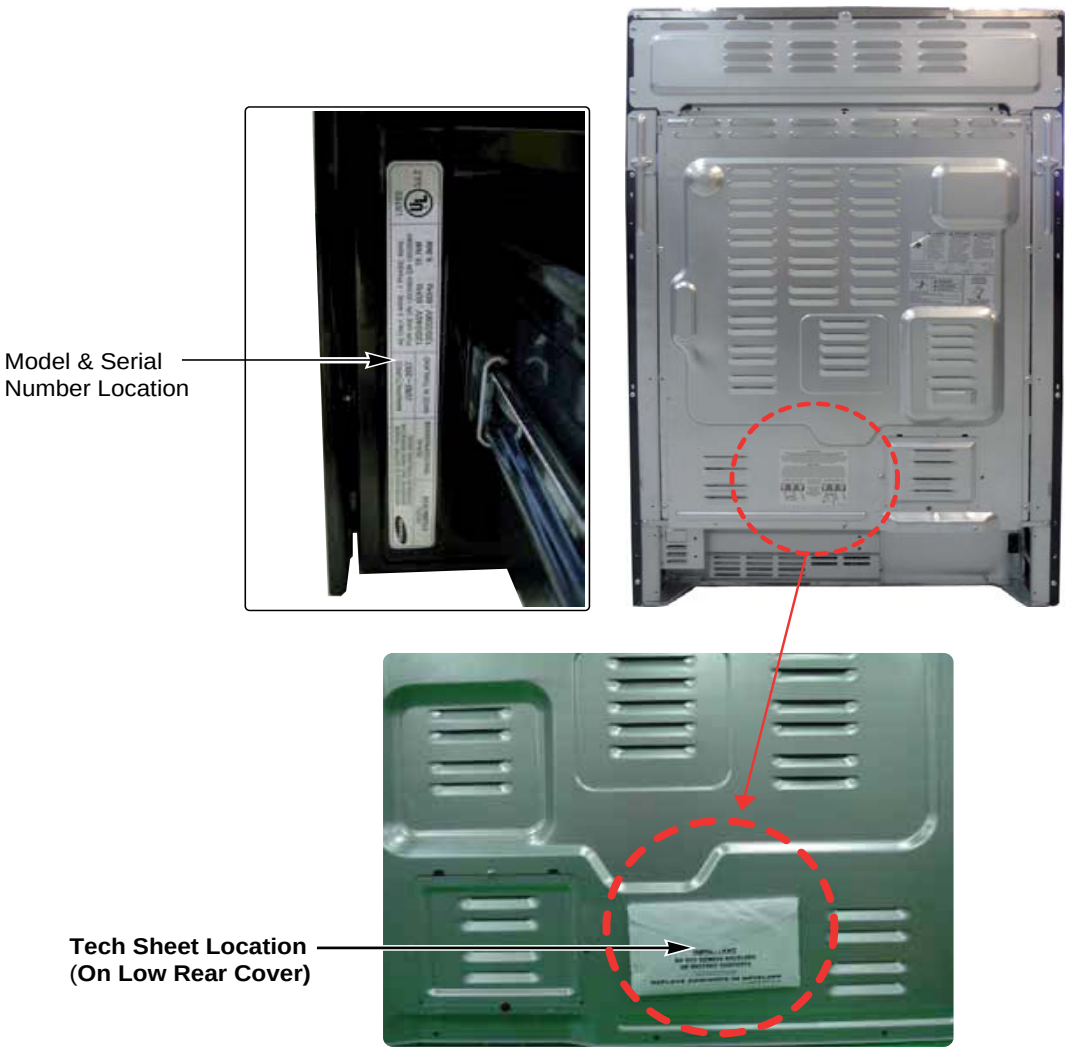
DEEP FAT FRYERS:

- Use extreme caution when moving the grease kettle or disposing of hot grease.

1-4 Model & Serial Number Label and Tech Sheet Locations

This Model / Serial Number label and Tech Sheet locations are shown below.





2-1 Features

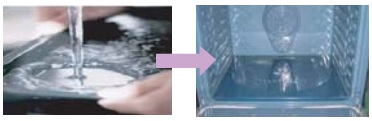
Features

Biggest Capacity
Large family food in holiday
Turkey 24lbs = 4.4 cu ft

- Samsung : 5.9 cu.ft
- Competitors
  A : 5.4 cu.ft B : 5.3 cu.ft

Steam Cleaning
Casual clean without any smell
More frequently

- Samsung : Self clean + Steam Clean
- Competitors : Self clean



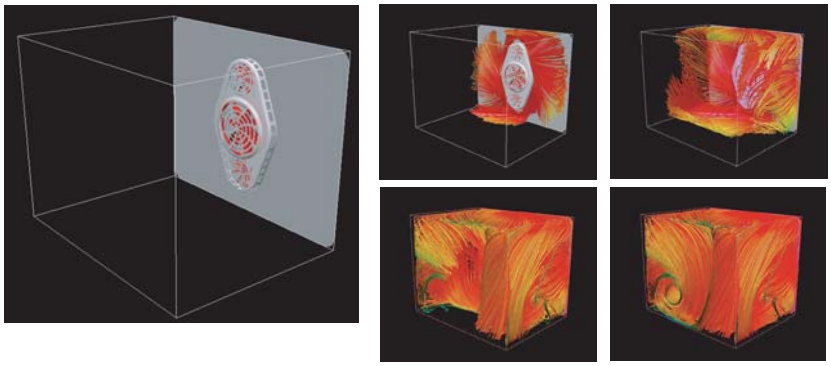
Surround Air - vection
Even cooking and energy efficiency

- Samsung : 3 fans
- Competitors : 1 fans

Samsung

Competitors

Surround Air-vection



- Main Convection Fan with 2-Sub.Fans makes complex small Swirl.
- Optimal Heat Distribution and Even Cook Performance.
- Updated Control Algorithm (for the Swirl Improvement of Door Front/Left/Lower)

Easy Steam Cleaning
- More Efficiency & Time Saving
- Available for Water and Oven Washing Liquid (Water + Detergent)
- Takes about 20minutes to Clean-out easily
- Steam fits Light and frequent cleaning,
  (Pyrolitic Self-cleaning fits Greasy dirt cleaning)

2. Specifications

Features	
Item	Steam Clean
How to Use	- Pour the water 10oz (+detergent) - Push the steam cleaning button - In around half min, the oven will stop automatically. - Wipe it out with wet cloths.
Operating (Temperature)	About 70 ºC
Operating Time	20 Minutes
Used Heater	Bottom Baked Heater
Smell	No smell
Tool to clean	Wet cloths

<u>Biggest Capacity</u>

- The biggest capacity in current US market !!!
- It benefits consumers to cook for large family food in Thanksgiving & Christmas seasons
  (i.e Turkey 25 lbs = 4.4 cu ft, 20 lbs = 3.5 cu ft)

<u>Boil Alert</u>

- Use Boil Alert function only to boil water.
- Automatically reduces power to a power level you have selected and sounds a signal.
- Required amount of water : 2 ~ 12 cups (500ml ~ 3000ml)

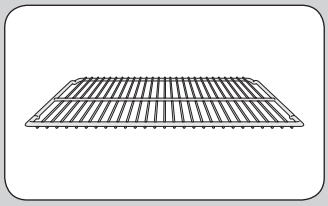
<u>Flexcook Zone</u>

- Lets you use a giant pan or griddle, which does not fit on a conventional sized heating element, by combining the two left side Induction elements into one.

2-2 Table of Specifications

Items		Model	
		BASIC MODEL	NEW MODEL
Model Name		FTQ307NWGX	NE597N0PBSR
Category		Convection	Convection
Overall	Width	30”	30”
	Installation type	Freestanding	Freestanding
	Color availability	STS	STS
Control	Oven	Touch	Touch
	Cooktop	Touch	Touch
	Display	LED	LED
	Electronic clock	Yes	Yes
	Control lock capability	Yes	Yes
	Audible preheat signal	Yes	Yes
Cooktop	Material	Ceramic glass	Ceramic glass
	# of element	4	4
Power	LR	6”- 1,400/2,000W	9” - 1,500/2,300W
	RR	7” - 1,800/2,600W	7” - 1,400/2,300W
	LF	11” - 2,400/3,700W	9” - 2,000/3,000W
	RF	6” - 1,400/2,000W	11” - 2,300/3,400W
Oven	Capacity(cu.ft)	5.9	5.9
	Broil element	3,800 watts	3,800 watts
	Bake element	3,000 watts	3,000 watts
	Convection System	Yes	Yes
	Convection element	Yes (800W, 240V)	Yes (800W, 240V)
	# of Racks	3	3
	Interior oven light	120V, 40 watts	120V, 40 watts
	Cleaning	Pyrolytic & Steam	Pyrolytic & Steam
Drawer	Type	Warming drawer	Warming drawer
	Element	600 watts	600 watts
	Warming rack	No	No
Dimensions (inch)	Oven Interior(W x H x D)	24 1/2 x 20 1/4 x 19 3/8	24 1/2 x 20 1/4 x 19 3/8
	Exterior - Width	29 7/8	29 7/8
	Exterior - Height	36 (cooktop), 47 5/8 (backguard top)	36 (cooktop), 47 5/8 (backguard top)
	Exterior - Depth	25 11/16 (Door), 28 (with handle)	25 11/16 (Door), 28 (with handle)
	Net weight: Lbs (Kg)	211 lbs (96kg)	198 lbs (90kg)
Power	Rating(240V 60Hz)	Range : 4,500W Cooktop : 7,000W	Range : 4,500W Cooktop : 7,200W

2-3 Accessory

Item	Description	Code No.	Q’ty
	Rack Flat	DG75-01001B	2
	Rack Split	DG94-00634A	1

3-1 Removing Cover-Back Main Wire, Cover-Back Guard Wire and PCB-Main

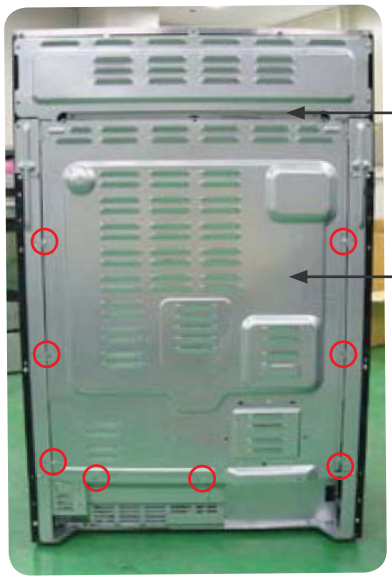
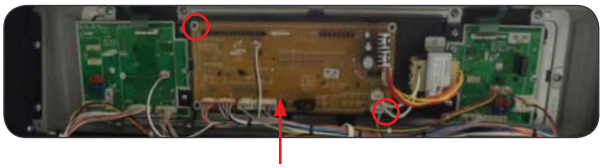
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Cover-Back Main Wire, Cover-Back Guard Wire and PCB-Main		**1.** Turn off the electrical supply going to the range. **2.** Pull the range away from the wall so that you can access the rear panel. **3.** Remove the 8 screws from the Cover-Back Main Wire and remove the panel.
		**4.** Remove 5 screws from the Cover-Back Guard Wire and remove the cover. **5.** Remove 2 screws of PCB-Main and separate PCB-Main.

* Reassembly of All part is the reverse order of disassembly.

3-2 Removing PCB-Sub & L.V.Trans

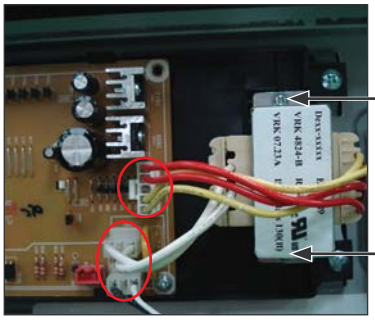
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
PCB-Sub & L.V.Trans	PCB-Sub	**1.** Turn off the electrical supply going to the range. **2.** Pull the range away from the wall so that you can access the rear panel. **3.** Remove Cover-Back Main Wire and Cover-Back Guard Wire (See step 4 on page 11) **4.** There are 2 PCB's (power control board). When you check PCB, check the proper PCB in default mode and check main PCB.
	 2 Screws	**5.** To remove the control power supply: a) Disconnect 2 connectors. b) Remove the 2 screws.

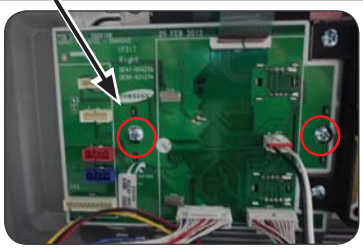
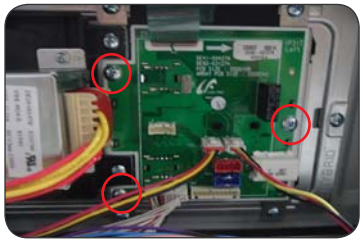
3-3 Removing Touch PCB

WARNING

Disconnect power before servicing the range Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Touch PCB		**1.** Turn off the electrical supply going to the range. **2.** Pull the range away from the wall so that you can access the rear panel. **3.** Remove Cover-Back Guard Wire (See step 4 on page 11)
	 	**4.** Remove Touch PCB connectors which be replaced. **5.** Remove 2 screws.(Right Touch PCB) or Remove 3 screws. (Left Touch PCB).
		6. Replace Touch PCB.

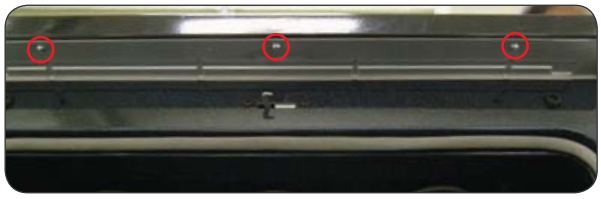
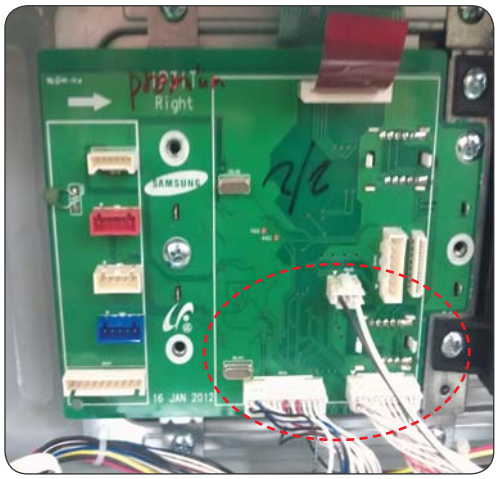
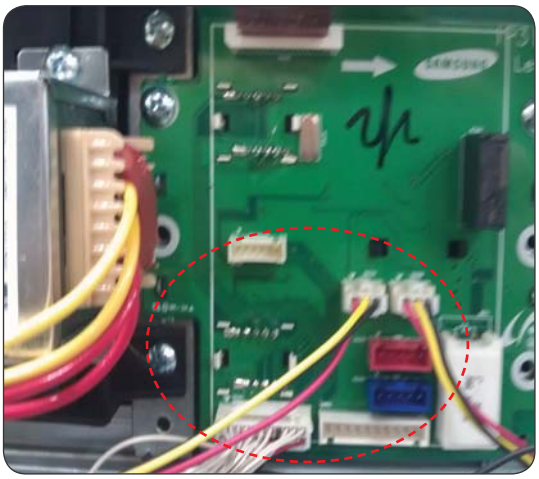
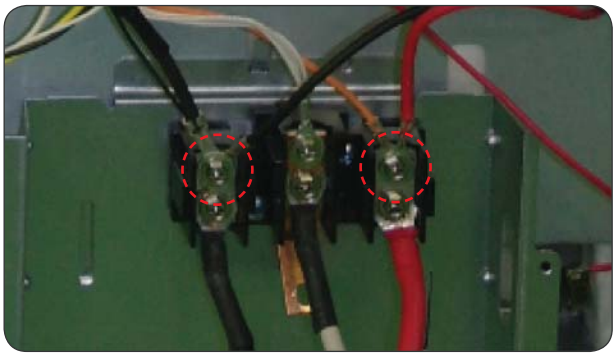
* Reassembly of All part is the reverse order of disassembly.

3-4 Removing Surface elements and The Ceramic Glass Cooktop

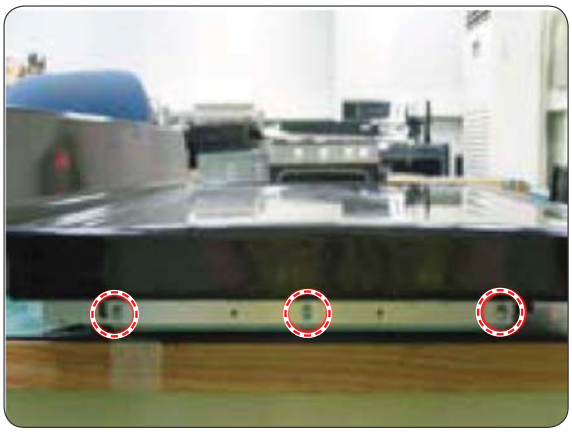
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock..

Parts	Explanation Photo	Explanation
Surface elements and Ceramic Glass Cooktop		**1.** Unplug the cord or disconnect power **2.** Open oven door and remove the 3 screws located at the front of the cook-top, then close the door.
	 	**3.** Remove the cover main and cover back guard wire. and then disconnect wires located at the touch PCB. **4.** Pull the range out of its mount location so that you can access the rear of the unit.
		**5.** Remove cover back main wire and Cover Back-guard wire. **6.** Unscrew 2 points on the terminal block and disconnect 2 wires.

3-4 Removing Surface elements and The Ceramic Glass Cooktop (Continued)

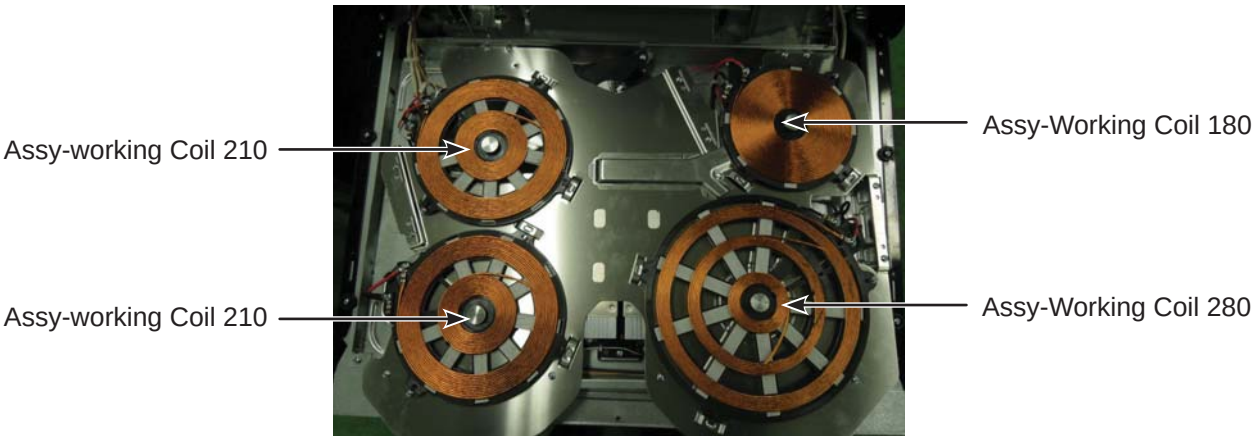
Parts	Explanation Photo	Explanation
Surface elements and Ceramic Glass Cooktop		**6.** Slightly lift up and pull up the cook-top and the remove the connectors at the Touch PCB and back. **7.** Remove 3 screws both side of bracket mountain. **REASSEMBLY NOTE :** When you reinstall the element make sure that the wires are inserted into the correct tap then reinstall the bracket screw to secure it to the cooktop.

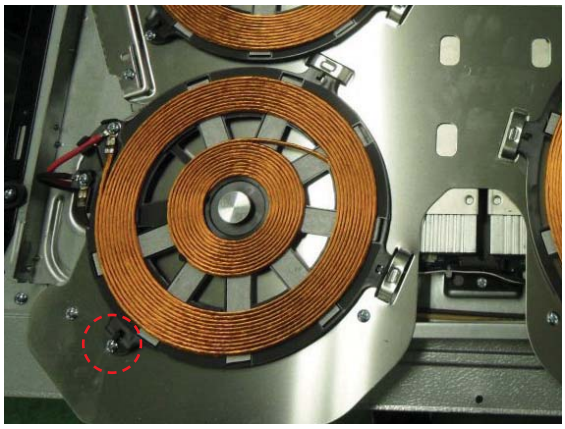
Attention

The Ceramic Glass may break if you use force especially on the edge.

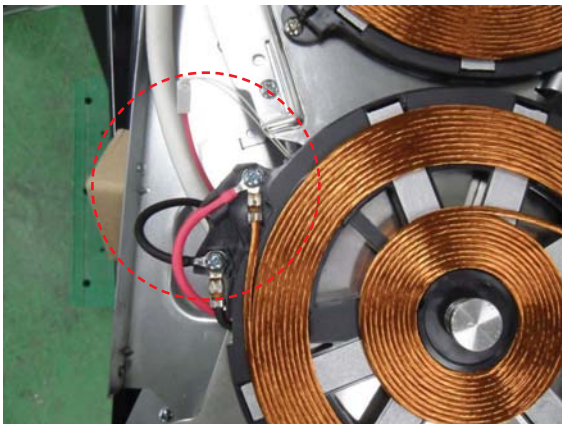
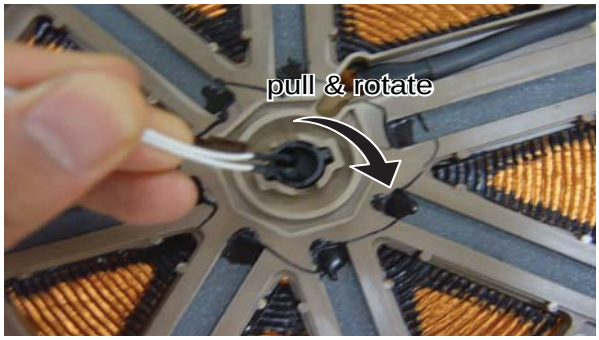
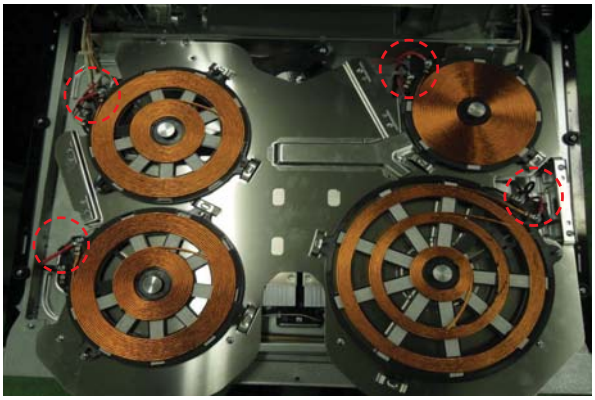
* Reassembly of All part is the reverse order of disassembly.

3-5 Replacement of the Assy-Working Coil

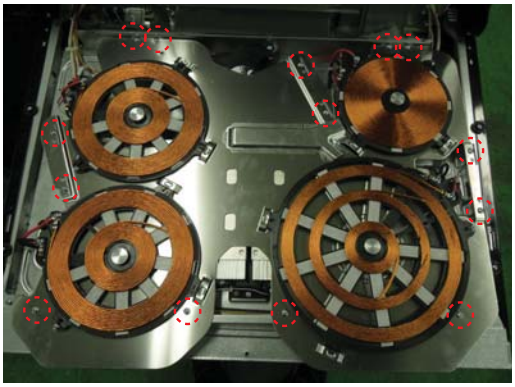
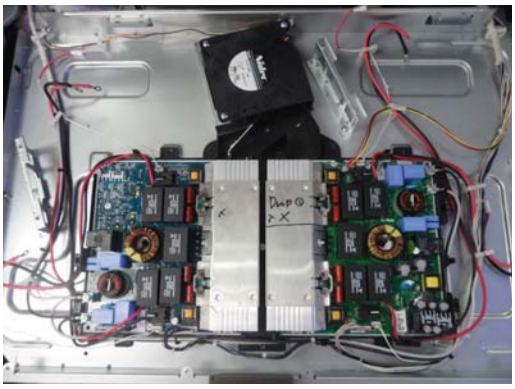
Explanation Photo


Parts	Explanation Photo	Explanation
Assy-Working Coil		**1.** Remove the screw(1 point) for replace assy-working coil.

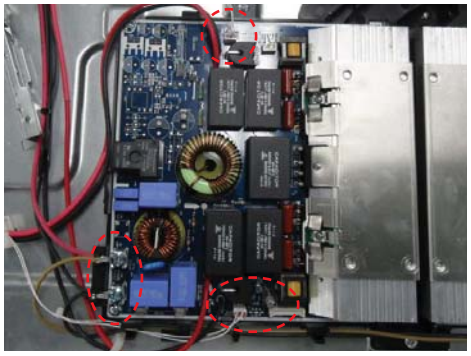
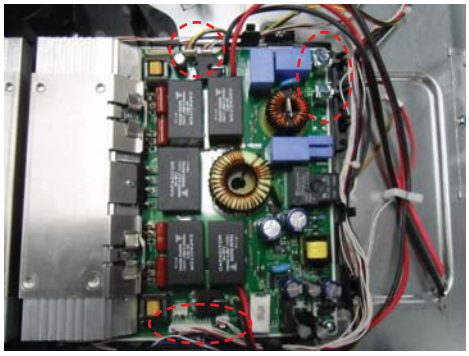
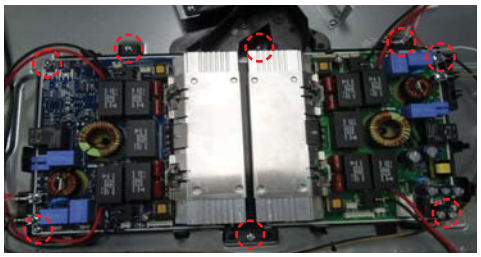
3-5 Replacement of the Assy-Working Coil(Continued)

Parts	Explanation Photo	Explanation
Assy-Working Coil		**2.** Disconnect all lead wires from the Assy-Working Coil.
		**3.** For the replacement of Sensor-Top, pull the Sensor-Top toward bottom side. **4.** Rotate the Sensor-Wire by 90degree until the Sensor-Top can be remove from the Coil-Working.
		**5.** After replacement, connect the Sensor-Top and all lead wires.
	Warning Wire connecting position is very improtant. Please keep attention.	

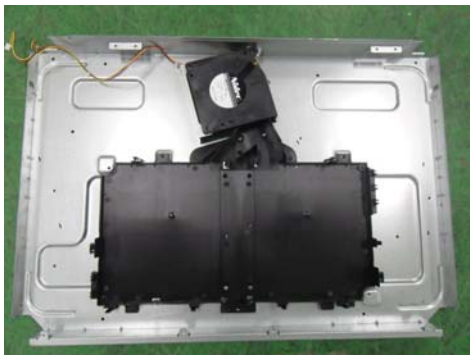
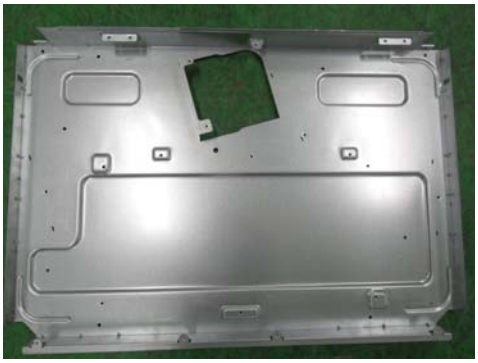
3-6 Replacement of the Assy-Induction Module

Parts	Explanation Photo	Explanation
Assy-Induction Module		**1.** Remove 14 screws on the Case-Induction and 8 screws on 4 points of lead wires of the Working Coil.
	Warning Wire connecting position is very improtant. Please keep attention.	
		**2.** Lift up the case Induction.

3-6 Replacement of the Assy-Induction Module(Continued)

Parts	Explaination Photo	Explaination
Assy-Induction Module	 	**3.** Remove the sub wire of Communication and Inverter.
	Warning Wire connecting position is very improtant. Please keep attention.	
		**4.** Remove the 8screws . **5.** Lift up the Assy Holder-PCB then remove 2 screws. **6.** Lift up and pull the Assy Inverter Module(L,R) toward left or right side.

3-6 Replacement of the Assy-Induction Module(Continued)

Parts	Explanation Photo	Explanation
Assy-Induction Module		**7**. Remove the Holder-PCB.
		8. Remove the 3 screws.
		**9**. Lift up the Fan motor.

3-7 Removing The Latch-Door & Switch-Door Plunger

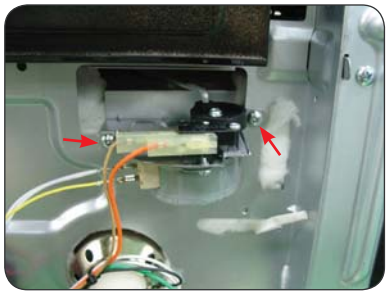
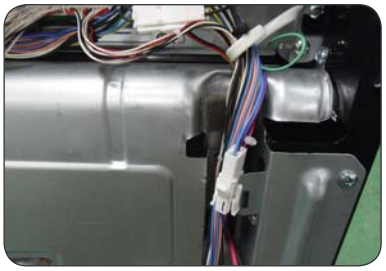
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Latch-Door & Switch-Door Plunger		**1.** Turn off the electrical supply going to the range. **2.** Open the oven door. **3.** Raise the cooktop (see page 15 for the procedure). **4.** To remove the Latch-Door: a) Remove the 2 screws from the front of cavity.
		b) Remove two screw from Cover-Back Main Guard and remove latch-door
		**5.** To remove the Switch-Door Plunger **a)** Remove the Cover-Back Guard Wire. (see page 11 for the procedure). **b)** Release the wire from Cable Clamp. **c)** Remove the Switch-Door Plunger from the range. take out carefully with shaking up and down by using tool.

* Reassembly of All part is the reverse order of disassembly.

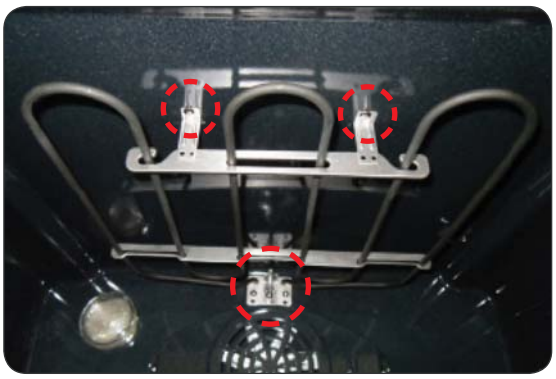
3-8 Removing Heater-Broil

WARNING

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

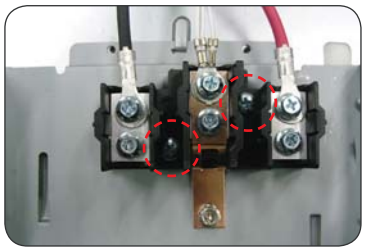
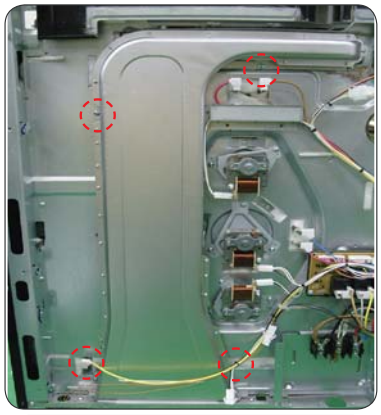
CAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Broil		**1.** Turn off the electrical supply going to the range. **2.** Open the oven door and remove the racks from inside the oven. **3.** To remove the broil element. a) Remove the Sensor-Thermistor and 5 screws from the front and rear brackets. b) Remove Cover-Back Main Wire and disconnect 2 wires from Heater-Broil and a wire from Sensor-Thermistor.

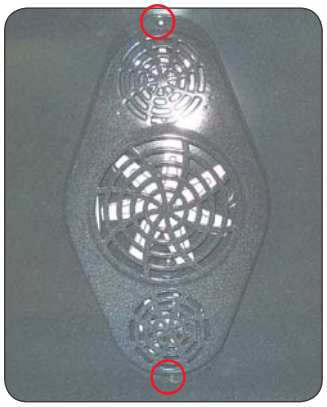
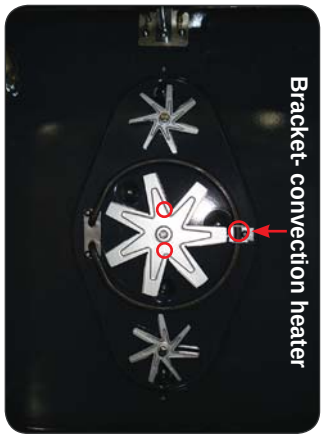
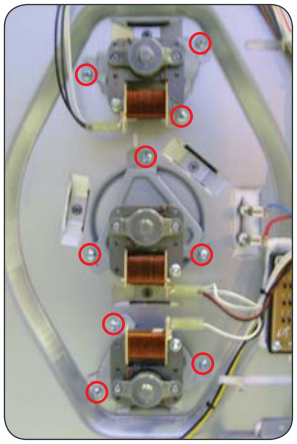
* Reassembly of All part is the reverse order of disassembly.

3-9 Removing Heater-Bake

Parts	Explanation Photo	Explanation
Heater-Bake	 	**1.** Unplug range or disconnect power. **2.** Pull the range out of its mounting location so that you can access the rear of the unit. **3.** Remove Cover-Back Main Wire. (See step 3~4 on page 11 for procedure) **4.** Remove Terminal-Block and Bracket-Cover Access(with Adiabatic-Terminal) by unscrew 3 points. **5.** Remove Cover-Warming Heater and disconnect 2 wires. **6.** Remove the duct by unscrew 4 points. **7.** Unscrew 2 points of Heater-Bake. **8.** Cut the Adiabatic-Rear based on the lower side. **9.** Carefully pull out Heater-Bake and replace it.

* Reassembly of All part is the reverse order of disassembly.

3-10 Removing Convection Element, Fan-Convection and Motor-Convection

Parts	Explanation Photo	Explanation
Convection Element, Fan-Convection , Motor-Convection	  	**1.** Disconnect power and remove oven racks. **2.** Pull the range out of its mounting location so that you can access the rear of the unit. **3.** Remove Cover-Back Main Wire from the unit. (See step 3 on page 11 for procedure) **4.** Remove oven door. (See Page 29 on page for procedure) **5.** Unscrew 2 points and remove Cover-casing. **6.** Unscrew 2 screws and remove Bracket-Convection Heater to remove Heater-Convection. **7.** Unscrew nut of Fan-Convection Main(CW), and 2 Fan-Convection Planets(CCW). **8.** Unscrew 9 points and disconnect a Motor-Convection wire and disconnect Heater-Convection wire.

CAUTION

Be careful not to bend the Fan-Convection(Blade)

3-11 Removing Lamp

WARNING

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo
Lamp	

Explanation

1. Disconnect power.
2. Remove oven door.
3. Turn the glass bulb cover in the oven counterclockwise to remove.
4. Turn bulb counterclockwise to remove from socket.
5. Replace bulb and cover by turning clockwise.

CAUTION

Be careful not to scratch or chip the oven liner paint when to remove the oven light socket in the next step.

Explanation Photo	Explanation
	To replace socket assembly: **6.** Disconnect the wires from the socket terminals. **7.** Use a screwdriver and bend the clips on the socket away from the edges of the liner hole(there are 6 clips on th e socket), and pull the socket out of the liner. Push the socket out from the rear of the unit.

* Reassembly of All part is the reverse order of disassembly.

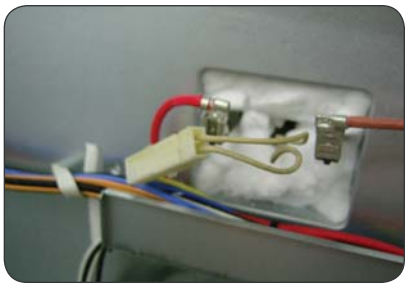
3-12 Removing Sensor-Thermistor

WARNING

ELECTRICAL SHOCK HAZARD
Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Sensor-Thermistor		**1.** Turn off the electrical supply going to the range. **2.** Remove oven door and racks from inside the oven. **3.** Unscrew Sensor-Thermistor. **4.** Remove Cover-Back Main Wire and disconnect a wire from Sensor-Thermistor. **5.** Replace the Sensor-Thermistor.

* Reassembly of All part is the reverse order of disassembly.

3-13 Removing Assy-Drawer & Heater-Warming Drawer

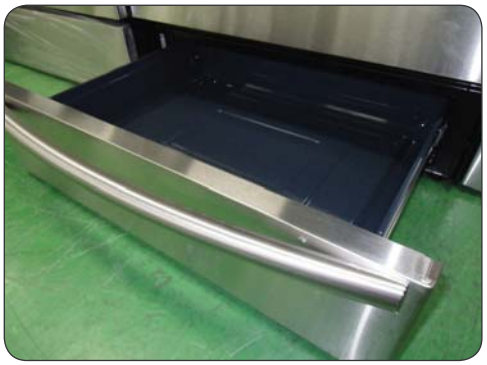
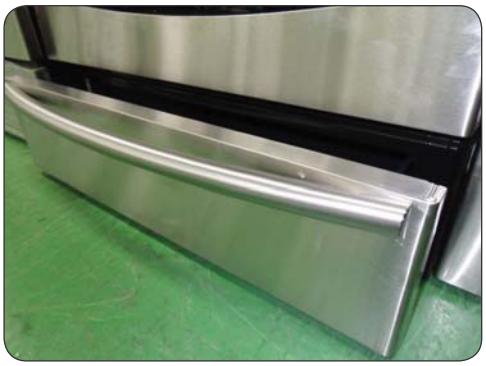
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo
Assy-Drawer & Heater-Warming Drawer	 

Explanation

To remove Assy-Drawer:

1. CAUTION -Turn power OFF before removing the Warming Drawer.
2. Open the drawer to the fully opened position.
3. Locate glide lever on each side of drawer, push down on the left glide lever and pull up on the right glide lever.
4. Pull out the warning drawer.

3-13 Removing Assy-Drawer & Heater-Warming Drawer (Continued)

Parts	Explanation Photo	Explanation
Assy-Drawer & Heater-Warming Drawer		**To remove Heater-Warming Drawer:** **1.** Remove a screw from Bracket-Warming Heater.
		2. Remove Cover-Warming Heater and disconnect 2 wires. **3.** Pull out the Heater-Warming Drawer.

* Reassembly of All part is the reverse order of disassembly.

3-14 Removing and Replacing Oven Door

WARNING

The door is very heavy. Be careful when removing door Do not lift door up by the Handle-Door.

Parts	Explanation Photo	Explanation
Oven door		**To remove Oven Door:** **1.** Fully open the door **2.** Pull the hinge locks downward.
		3. Firmly grasp both side of the door at the top. **4.** Close door to the door removal position, which is approximately 5 degrees. Lift door up and out until the hinge arm are clear of the slot.
	 	To replace door: **1.** Firmly grasp both sides of the door at the top position.
		2. Fully open the door. (If the door will not fully open, it means that the indentation is not seated correctly in the bottom edge of the slot. Push the hinge locks up to the locked position.) **3.** Close the oven door.

* Reassembly of All part is the reverse order of disassembly.

3-15 Removing Handle-Door and Glass-Inner

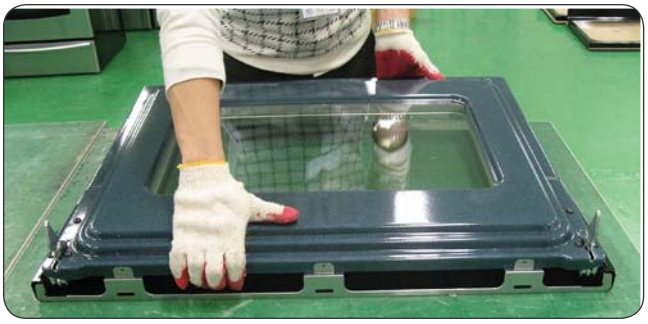
WARNING

ELECTRICAL SHOCK HAZARD

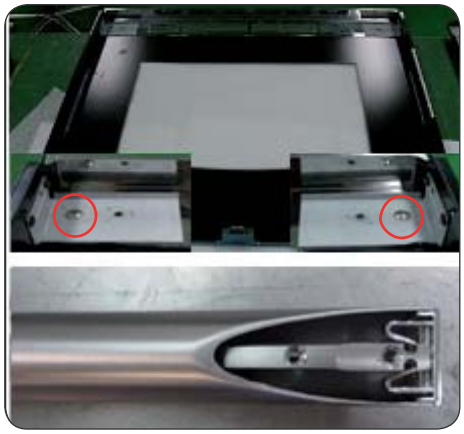
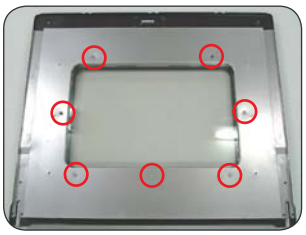
Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

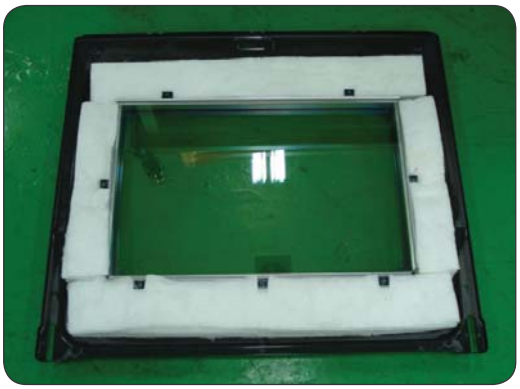
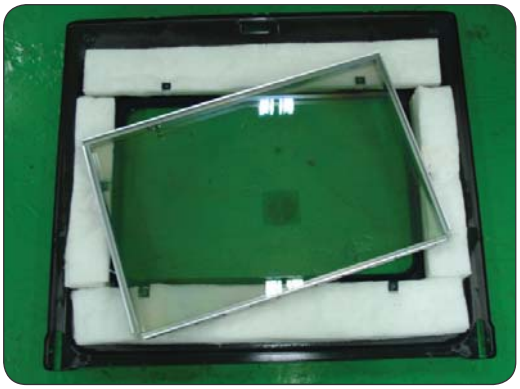
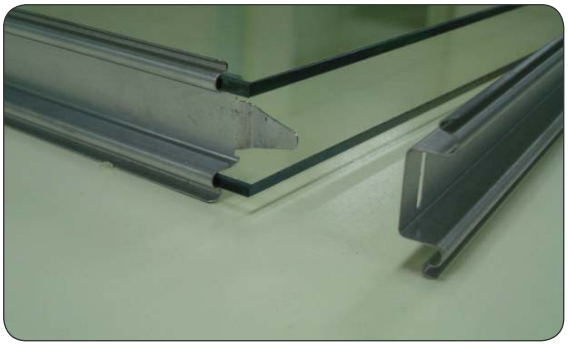
When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Door		**1.** Remove the oven door from the range (see page 29 for the procedure.) **2.** Place the oven door on a padded work surface with the front glass facing down. **3.** Remove 3 bottom screws from the door.
		4. Remove 2 Handle-screws from the door.
		**5.** Lift the door rear assembly off the front assembly and set it aside
		6. Remove 2 spacers and 2 screws.

3-15 Removing Handle-Door and Glass-Inner (Continued)

Parts	Explanation Photo	Explanation
Handle Door		**To remove Handle-Door** **1.** Remove 2 screws to remove Handle-Door
Glass-Inner	 	**To remove Glass-Inner** **1.** Remove 6screws from rear side of door to remove 2 Hinge-Door.
		**2.** Remove 4screws ro remove Glass-Inner Sub Assembly **3.** Remove 7screws ro remove Baffle-Door

3-15 Removing Handle-Door and Glass-Inner (Continued)

Parts	Explanation Photo
Handle Door	 
	Explanation
	4. Remove Baffle-Door and take out the Glass-Inner assembly.
	Explanation Photo
	
	Explanation
	5. Unfold 2 flanges of Cover-Frame Inner Glass to taking out Glass-Inner

* Reassembly of All part is the reverse order of disassembly.

3-16 Removing Gasket-Door

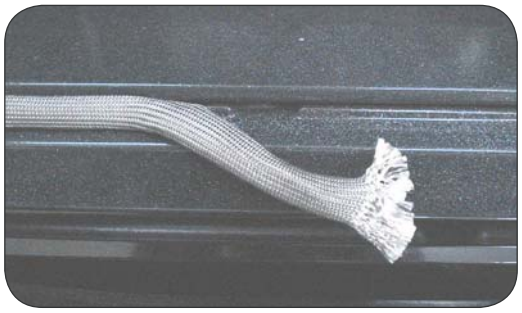
WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo
Gasket door	
	Explanation
	1. Open the oven door to its fully down position. **2.** Pull the ends of the gasket out of the liner holes. **3.** Pull the oven door gasket clips out of the holes until all of the clips are removed.
	REASSEMBLY NOTE: When you install the new gasket, make sure that all of the clips are seated in their liner holes, and that the ends of the gasket are pushed fully into their holes. Use the pointed end of a pencil to push the gasket ends into the holes.

* Reassembly of All part is the reverse order of disassembly.

3-17 Removing The Panel-Side

WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the range. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

PRECAUTION

When you work on the electric range, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

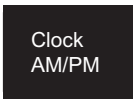
Parts	Explanation Photo	Explanation
Panel Side	Panel Side	**1.** Turn off the electrical supply. **2.** Remove the oven door from the range (see page 3-14 for the procedure). **3.** Pull the range away from the wall so you can access the back of the unit. **4.** Remove the 8 screws from the rear of Panel-Side and remove Cooktop. **5.** Remove the (each) 3screws from the top the Panel-Side. **6.** Pull the back of the side panel out from the range approximately 10˚ **7.** Push forward and remove Panel-Side.

* Reassembly of All part is the reverse order of disassembly.

4-1 Failure Display Codes

There is a error code and two kinds of error codes. Possible error codes during use can be checked before service.

1. Press **Clock AM/PM** pad.



2. Press **Clock AM/PM** pad again.

3. Press a number **1, 2, 3, 4** pad.

4. Press **Start/Set** pad.

5. Press **Custom Cook** and number **0** pads at the same time for 2 seconds.
   Error codes are displayed.

6. Press number **0** pad, the last 5 error codes can be checked. But, if the oven turns off, the stored error codes are deleted.

7. Press **Clear/Off** pad to return to normal display mode.

Oven sensor error (Measure or Check tool : Multimeter)

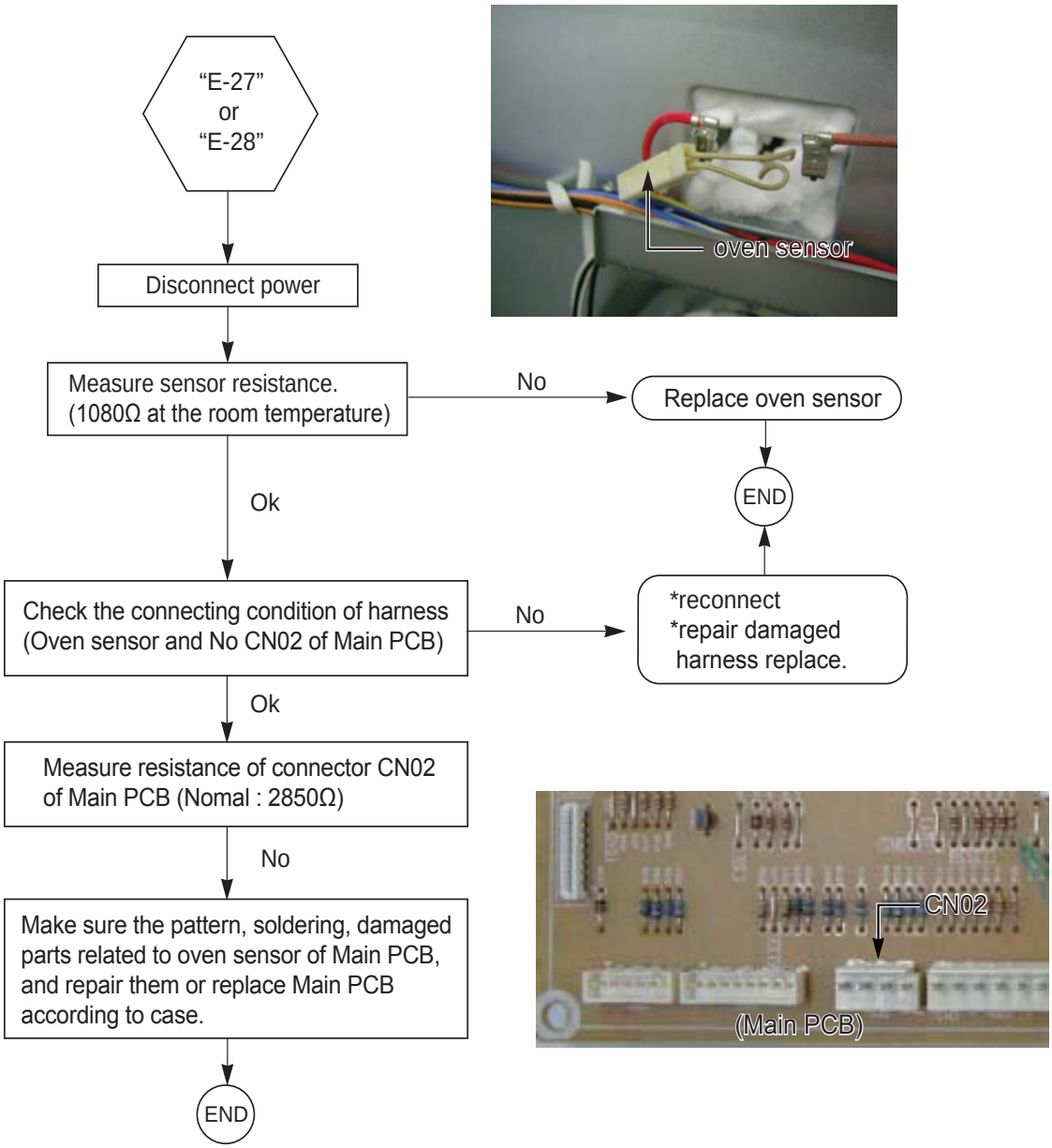
Failure code	CAUSE	SOLUTION
E-27	Oven sensor opened (over 2950Ω)	**1.** Disconnect power. Open the back cover. Disconnect sensor harness from control Measure sensor resistance :1080Ω at the room temperature → If there are any problems, replace oven sensor. **2.** If there is not any problem with oven sensor, Please check whether there is a damaged therminal or wire on harness. **3.** Check resistance of oven sensor connector on main PCB (Normal:2850Ω)
E-28	Oven sensor shorted. (Under 930Ω)	

4-1 Failure Display Codes

Safety error

Failure code	CAUSE	SOLUTION
E-08	Oven heating error	1. Disconnect power. Open the back cover. Disconnect sensor harness from control. Measure sensor resistance:1080Ω at the room temperature → If there are any problems, replace oven sensor. 2. Check the broil, bake and convection heater. Check the resistance of the each heater. 3. Check whether DLB of Main PCB, Broil, Bake and Convection heater relay are being worked normally. 4. Check whether there is any disconnection of harness which is linked with main PCB on sub PCB. 5. Check the resistance of oven sensor connector on main PCB. (Normal : 2850Ω)
E-0A	Oven heating over	
- SE -	Shorted key	1. Check whether cable of keypad has been inserted into connector of Sub PCB. 2. Check whether between Sub PCB and connector or keypad and cable have a short circuit. 3. If there is not a problem occurred with connector on Sub PCB and cable of keypad, replace the Sub PCB.
E-0E	Door locking error	1. Disconnect power. Open the back cover. Check wether harness has been connected with door lock switch and motor. 2. Confirm whether resistance value of door lock motor is to be normal one or not. 3. With operating door lockout, measure a voltage of connector on harness which is linked with door lock motor. (Normal Voltage : AC 120V) 4. Check whether door locking switch is being worked normally.
E-27	Oven sensor opened (over 2950Ω)	1. After 20 seconds from starting to work of oven, buzzer is beeping 10 times long and then finally it displays “E-27” or “E-28” as Error message. 2. If a series of function for error is not performed at all, please make sure through the method of 4-1 on 35 page.
E-28	Oven sensor shorted. (Under 940Ω)	

4-1 Failure Display Codes



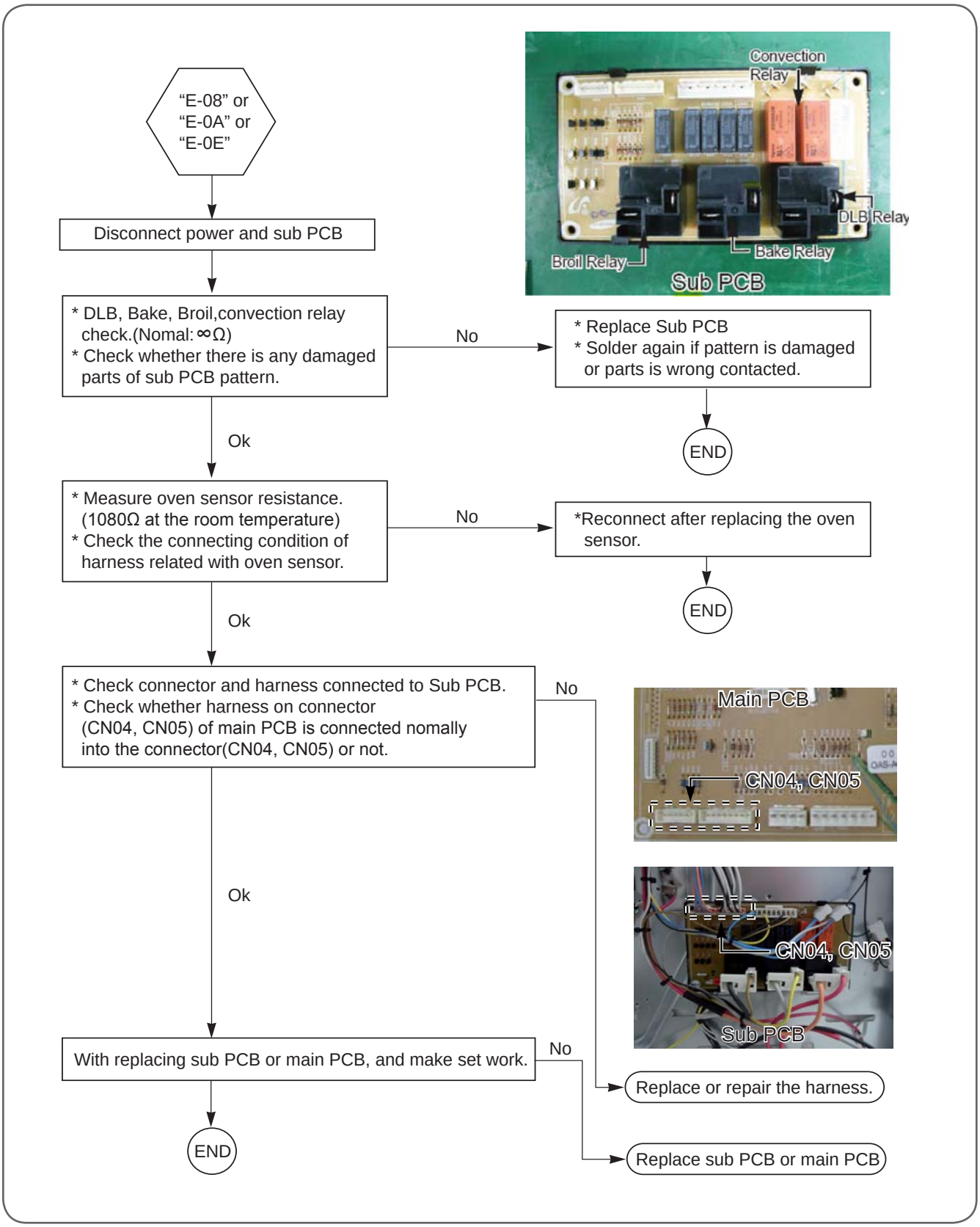
4-1 Failure Display Codes

Safety error

Failure code	CAUSE	SOLUTION
E-08	Oven heating error	1. It will display “E-08” after buzzer is beeping 10 times long if it could not reach 100˚F(38˚c) within 10 minutes during oven is working. 2. Please make sure through the method of 4-1 on 35 page, if if those series of working for informing error take long time or not functioned.
E-0A	Oven heating over	1. It will display “E-0A” after beeping 10 times Bz long, if temperature is more than 600˚F(316˚c) during oven is working excluding the case of self-cleaning. 2. Please make sure through the method of 4-1 on 35 page, if those series of working for informing error take long time or not functioned.

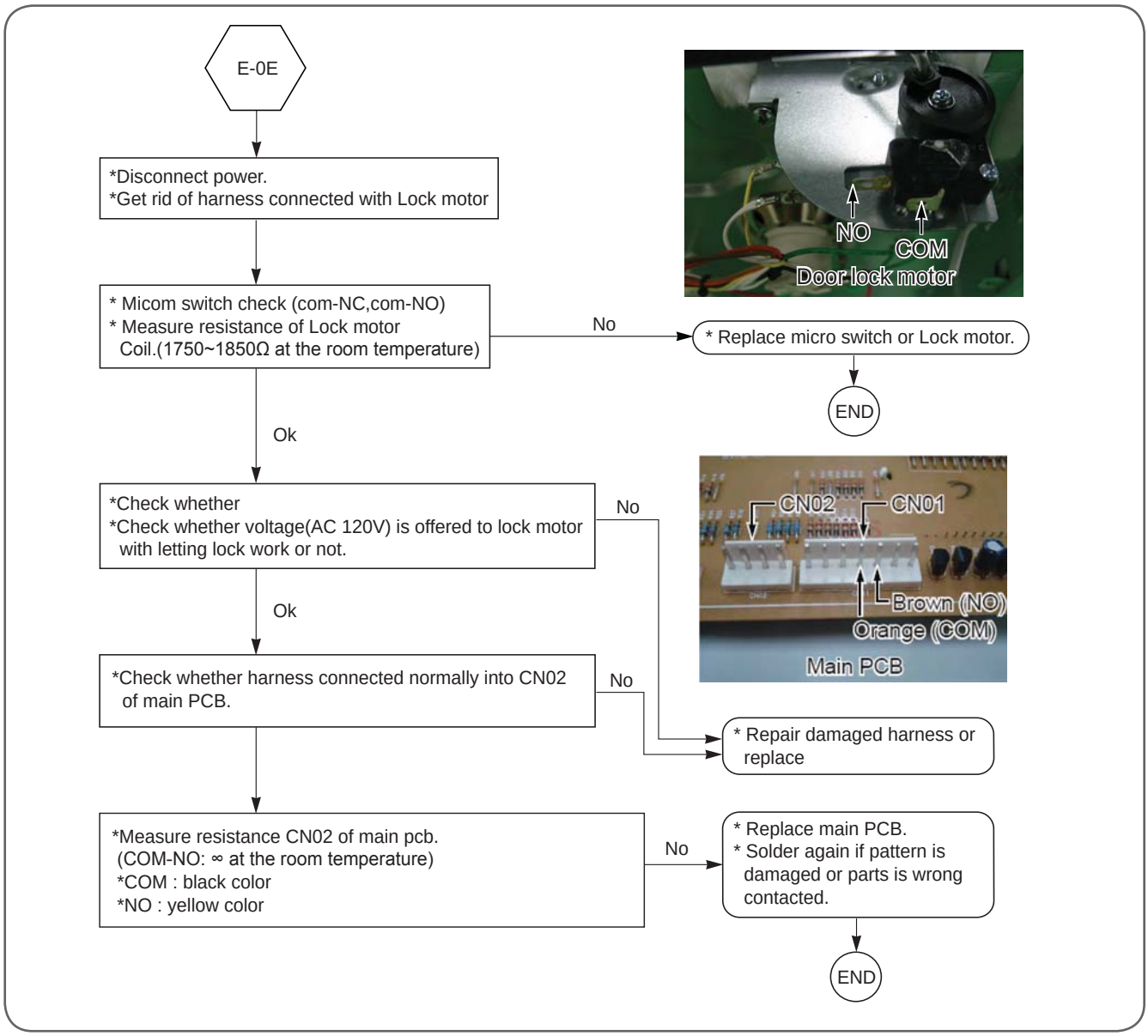
4-1 Failure Display Codes

Safety error



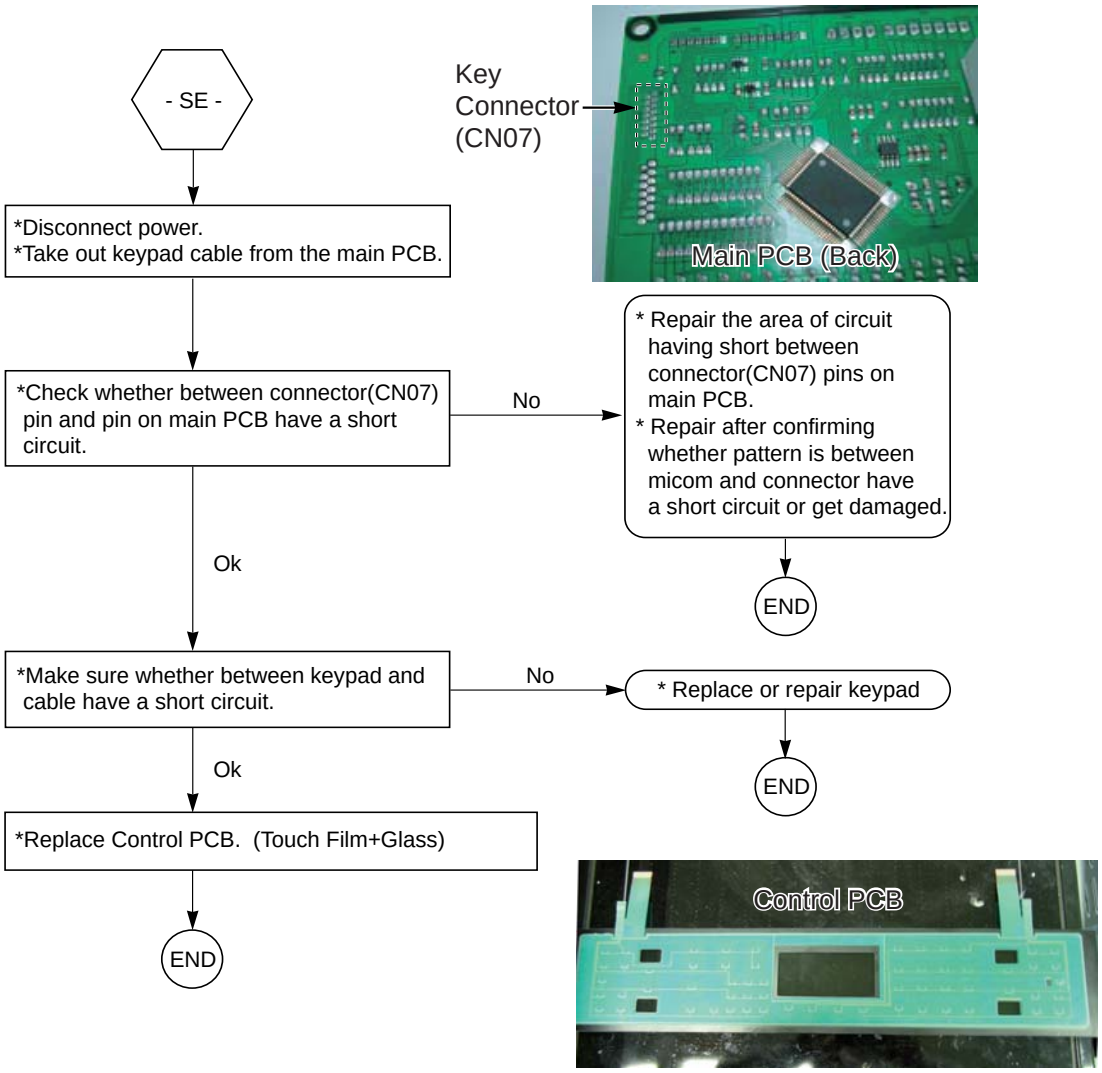
4-1 Failure Display Codes

Failure code	CAUSE	SOLUTION
E-0E	Door locking error	*Control lockout(press cooking time and Delay start pads at the same time for 3 seconds.) When 1 minute elapsed, It will display “E-0E” after buzzer is beeping 10 times long, if locking is occurred continually, or door locking is not working during self-cleaning or steam is being operated. Please make sure through the method of 4-1 on 36 page if those series of working for informing error take long time or not functioned.



4-1 Failure Display Codes

Failure code	CAUSE	SOLUTION
-SE-	Short key	When 10 seconds elapses, It will display “-SE-” after buzzer is beeping 10 times long if between main PCB and cable connector or keypad and cable have a short circuit. Please make sure through the method of 4-1 on 36 page if those series of working for informing error take long time or not functioned.

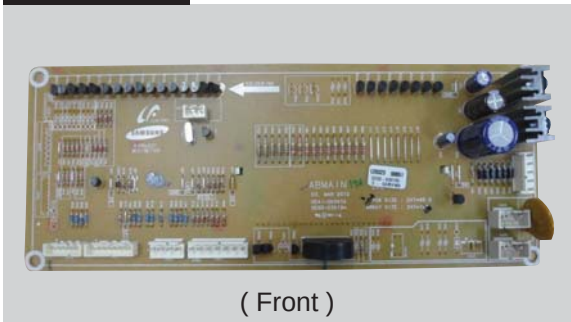


4-1 Failure Display Codes

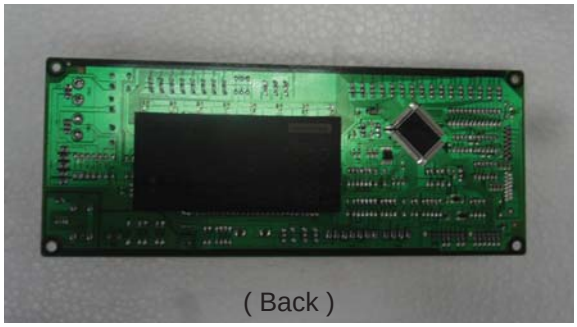
Control PCB Operation

Sort of Control PCB

Main PCB

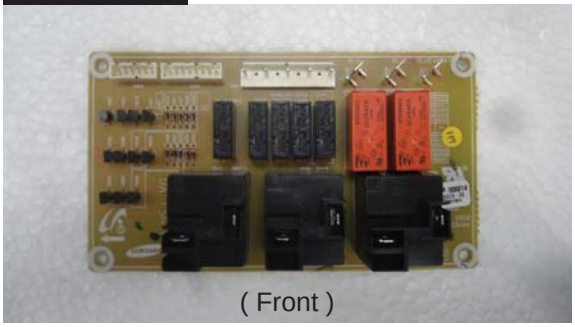


(Front)

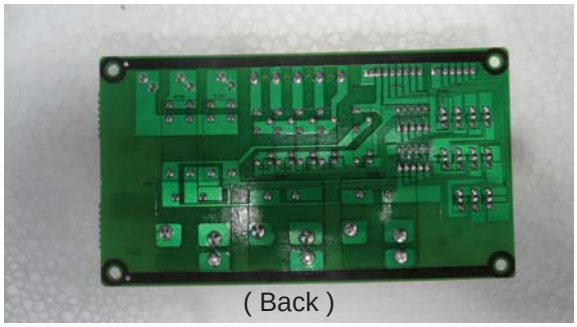


(Back)

Sub PCB

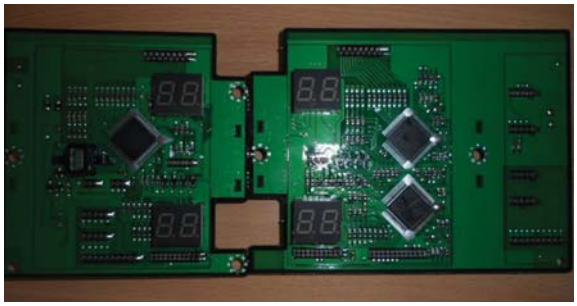


(Front)

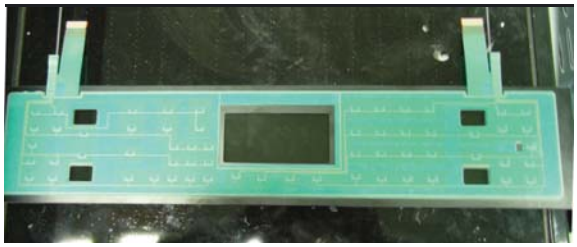


(Back)

Touch PCB

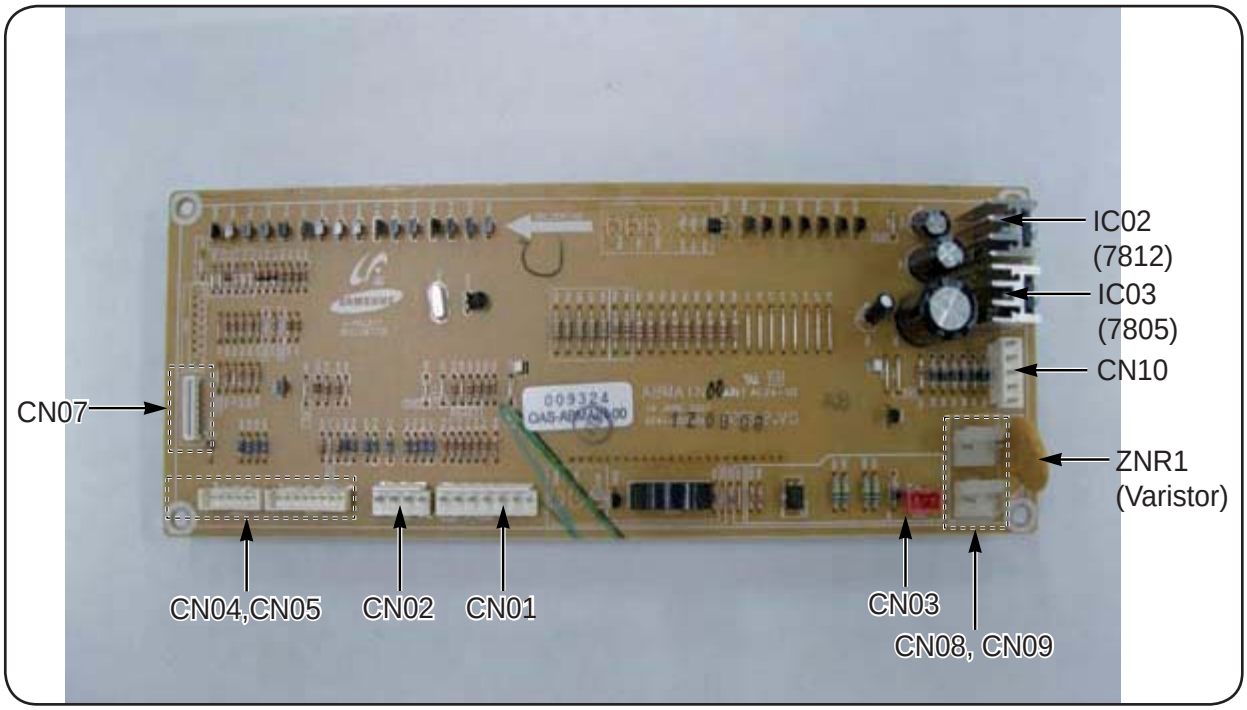


Touch Control



4-1 Failure Display Codes

Explain of primary parts of Main PCB

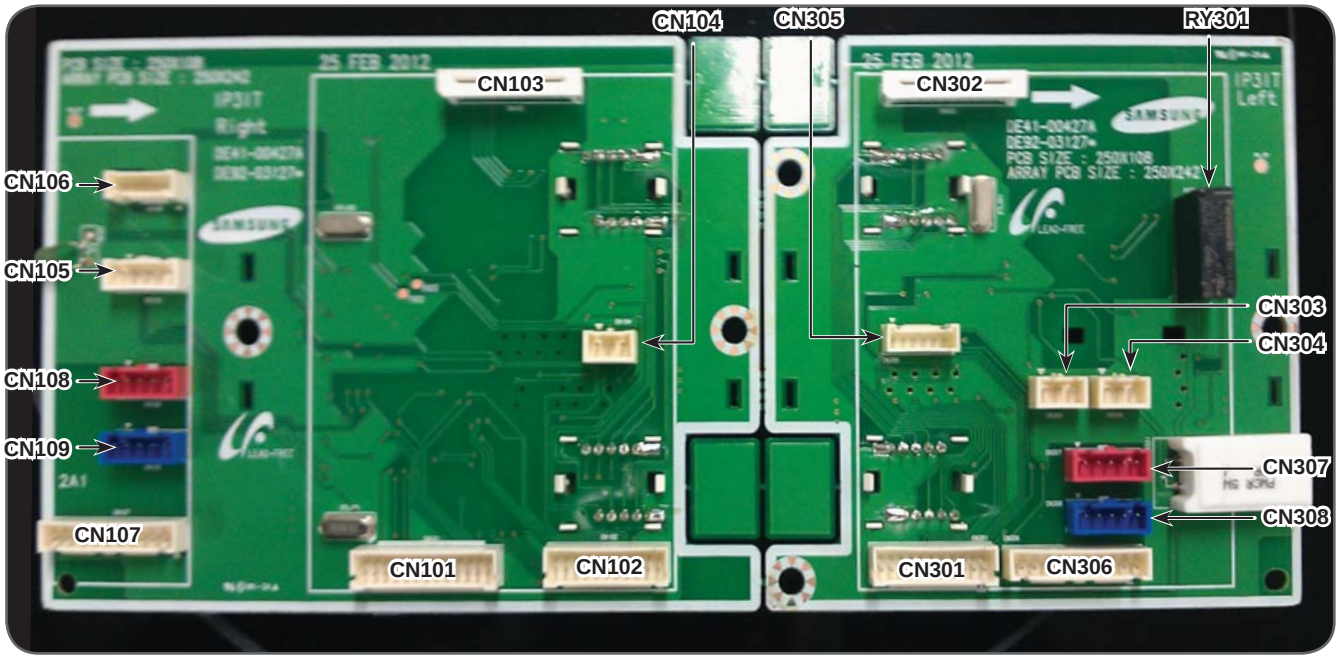


Explain of the function of primary parts.

CN01	This is connector which is connected with Door plunger switch and Door lock switch. (COM-NO)
CN02	This is connector which is connected with oven sensor.
CN04,CN05	This connector is to get all operating of relay on sub PCB to be connected.
CN08,CN09	This is to supply power with primary on Low voltage transformer, and AC120V with main PCB through harness. It won't be problem even though CN08 and CN09 has been changed when you insert housing.
CN10	This is connector which take a role of supplying secondary voltage of Low voltage transformer with Main PCB.
CN11	This is connector which is detect operating of Cook-top.
ZNR1	This is the element to protect main PCB, getting varistor to work if over voltage is supplied with varistor.
IC02	This is to supply DC12V with main PCB by voltage regulator.
IC03	This is to supply DC5V with main PCB by voltage regulator.

4-1 Failure Display Codes

Explain primary parts of Touch PCB

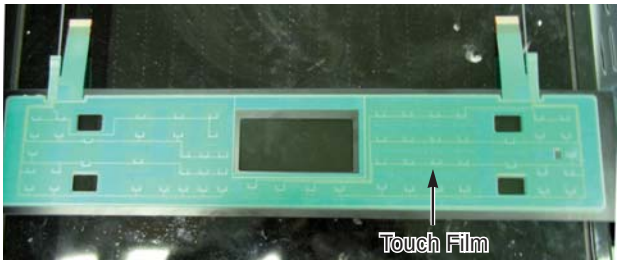


Explain of the function of primary parts.

CN101	This is connector which connect Inverter module.
CN102	This is connector which connect PCB's left side.
CN103	This consist of 16 pin and take a role of getting a cable on Touch Film to connect with Right touch PCB.
CN104	This is connector which connect Oven.
CN105	This is connector for Main MCU writing.
CN106	This is connector for Right touch IC writing.
CN107	This is connector for Right Inverter MCU IC writing.
CN108	This is connector which is connected Inverter Right Front MCU for writing.
CN109	This is connector which is connected Inverter Right RearMCU for writing.
CN301	This is connector which is connected PCB's Right side.
CN302	This consist of 16 pin and take a role of getting a cable on Touch Film to connect with Left touch PCB.
CN303	This take a role of control of Cook-top Fan motor's Low mode.
CN304	This take a role of control of Cook-top Fan motor's Low mode.
CN305	This is connector for Left touch IC writing.
CN306	This is connector for Left Inverter MCU IC writing.
CN307	This is connector which is connected Inverter Left Front MCU for writing.
CN308	This is connector which is connected Inverter Left Rear MCU for writing.
RY301	This is relay for control of Cook-top Fan motor's Low mode.

4-1 Failure Display Codes

Explain primary parts of Touch Control PCB



1. Touch control PCB : This is circuit PCB to have keypad worked.

If touch control PCB become inferior you should replace all of the PCB assembly of touch control (Glass + Touch Film).

2. Touch glass : Touch glass is to guide keypad by touching this. The user can make oven work.

SYMPTOM	DIAGNOSIS	REMEDY
Oven not operating (No power, No display)	* Measure an input voltage. (240/120V or 208/120V) * Measure an input voltage of terminal block.	* Check circuit breaker. * Make sure that the state of wire is connected with Terminal block.
	* Measure voltage of connector(CN08,CN09) on main PCB L1~N : 120V * Measure secondary voltage of Low Voltage Transformer. Red + Red color : 13.5V Yellow + Yellow color : 8V	* Replace of repair if harness has been loosen or disconnected. * Replace if resistance of Low voltage transformer primary coil is over MΩ. (Thermal Fuse out)
	* Make sure that the relay on sub PCB is being worked normally. * Make sure whether harness between connector (CN04,CN05) on sub PCB and connector (CN04,CN05) on main PCB has been loosen or disconnected.	* Replace sub PCB if relay has been damaged or there is any cracking on the sub PCB. * Repair harness is connected main PCB with sub PCB. * After confirming whether harness has been inserted into relay on sub PCB or not, take action follow as; - Replace or repair harness. - Replace or repair sub PCB.
	* Measure resistance both ends of terminal on thermostat. (normal : 0 ohoms) * Check whether harness is connected terminal on thermostat has been loosen or disconnected. * Measure voltage regulator (IC02,IC03) on main PCB. - IC02 : 7812(DC 12V) - IC03 : 7805(DC 5V)	* Replace the thermostat. * Replace or repair harness. * Replace or repair after confirming the state of working of main PCB.
Oven temperature is risen slowly.	* It will display “E-08” if it fail to reach 100˚F(38˚C) within 10 minute in a state of room temperature.	* Replace after checking whether there is any problem with oven sensor. (1080Ω at the Room temperature)
	* Make sure whether harness is connected with Broil, Bake and convection heater has been loosen or disconnected.	* Repair and replace harness.
	* Make sure whether Broil, Bake, and convection heater has been disconnected.	* After taking out terminal from each heater, measure resistance of heater and then replace that if it is not a normal resistance value.
	* Make sure that heater relay and pattern on sub PCB.	* Replace or repair relay. * Replace or repair sub PCB.

SYMPTOM	DIAGNOSIS	REMEDY
Oven temperature is risen fast.	* Check whether temperature is risen over 400˚F(202˚C) within 10 minutes in a state of room temperature.	* Replace or repair it if relay on sub PCB or main have a short circuit.
	* Check whether harness has been misconnected or have a short circuit.	* Replace or repair harness.
	* Measure resistance values of each heater are within a normal extent or not.	* Replace heater is in a abnormal state.
The self-cleaning feature will not operate when warming center or warming drawer is on.	* This is in normal state.	* The self-cleaning feature will not operate when warming center or warming drawer is on.
Keypad is not worked normally in partially or entirely.	Make sure that keypad cable on touch PCB is in normal state.	* Replace after confirming whether it has been loosen or disconnected.
	Make sure connector (CN07) on main PCB or PCB pattern.	* Replace or repair after confirming whether keypad cable has been loosen or disconnted.
	Check whether touch control PCB has been damaged.	* Replace assembly of touch control pcb. (PCB + Glass touch)
Warmer drawer heating is not working.	* Check warmer drawer relay (Ry06) on sub PCB and terminal(T03).	* Replace terminal(T03) or relay(Ry06). * Replace sub PCB.
	* Measure whether resistance value of warmer drawer heater is in normal extent or not.	* Replace warmer drawer heater.
Oven lamp is not working.	* Check the oven lamp relay (Ry09) on sub PCB and connector (CN01).	* Replace or repair if harness has been loosen or disconnected. * Replace oven lamp relay(Ry09) or Ry-source relay.(Ry01) * Replace Sub PCB.
	Measure the resistance value of both ends of lamp terminal.	* Replace lamp if it has been disconnected. (120V / 40W)

SYMPTOM	DIAGNOSIS	REMEDY
Convection fan is not rotated.	Check whether Convection fan relay (Ry08) on sub PCB and connector(CN01) is in normal.	* Replace or repair Relay. * Replace or repair connector.
	Make sure whether harness between connector(CN04, CN05) on sub PCB and connector(CN04, CN05) on main PCB has been connected normally.	* Replace or repair harness. * Replace or repair connector. * Replace sub PCB.
It has smell or smoke when oven has been started initially.	This is in normal state.	* It has smell or smoke with burning dirt in oven or a foreign substance when oven has been working initially. * Ventilate after getting self cleaning mode to work.
LED display is a little bit dim partially or invisible entirely.	* LED display is inferior.	* Replace main PCB.
There is not buzzer beep sound when keypad is being worked.	Check the state of buzzer on main PCB and whether PCB pattern have a short circuit or has been open.	* Replace or repair main PCB.

4-1 Failure Display Codes

4-1-1 Temp Sensor Error

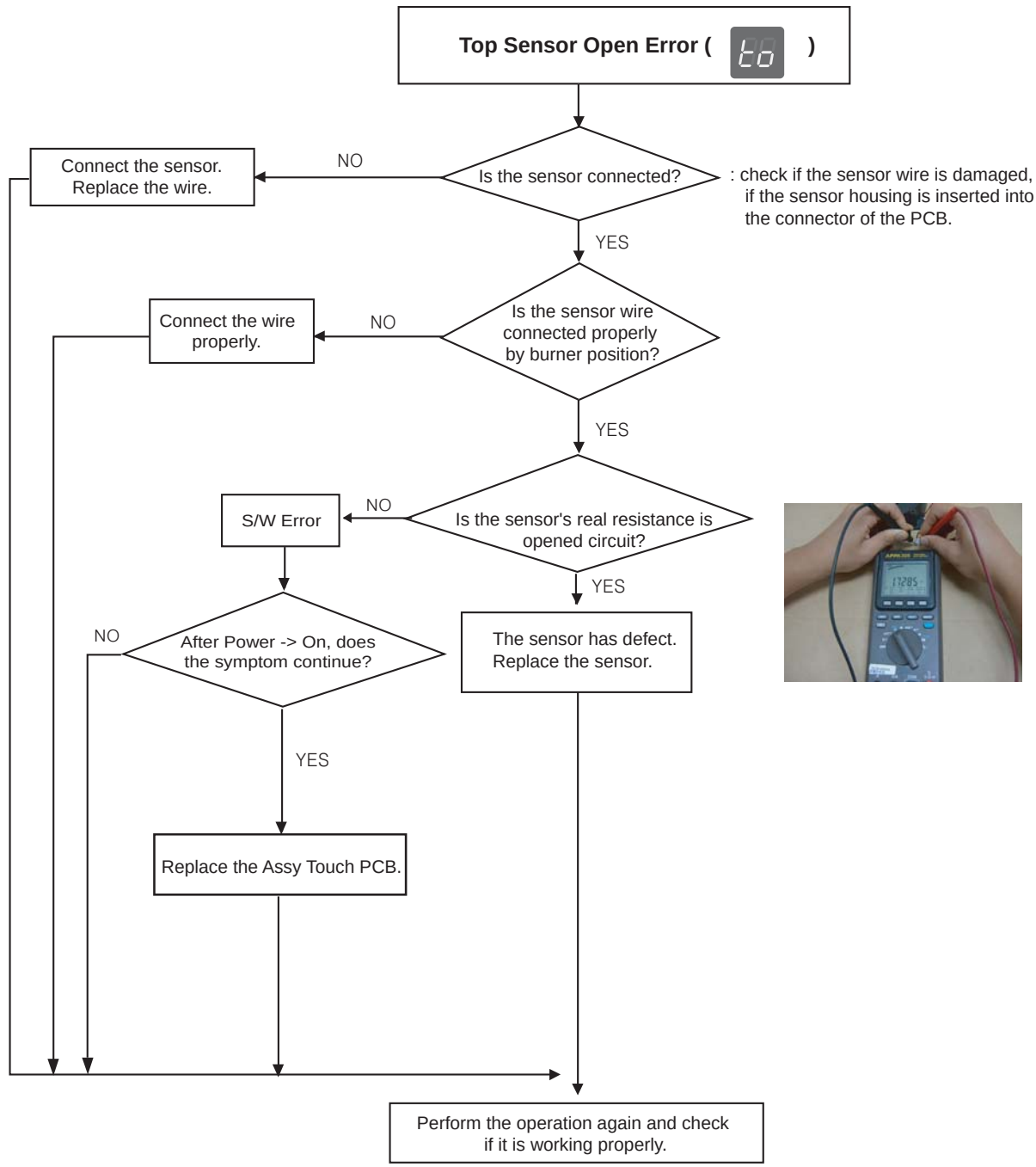
Error Code	Solution	Page
to	**Top Sensor Open Error (Sensor-Top)** It occurs due to a defective sensor, misplaced wires, a defective PCB and when A/D value that MICOM senses rises over 252. Also, it may occur when the ambient temperature falls under -10˚C.	51 Page
t4	**Top Sensor Short Error (Sensor-Top)** It occurs due to a defective sensor, misplaced wires, a defective PCB and when A/D value that MICOM senses falls under 10.	52 Page
bo	**IGBT Sensor Open Error (Assy-Inverter Module)** It occurs due to a defective sensor, misplaced wires, a defective PCB and when A/D value that MICOM senses rises over 239. Also, it may occur when the ambient temperature falls under -10˚C.	53 Page
b4	**IGBT Sensor Short Error (Assy-Inverter Module)** It occurs due to a defective sensor, misplaced wires, a defective PCB and when A/D value that MICOM senses falls under 10.	54 Page

4-1-2 Safety Error

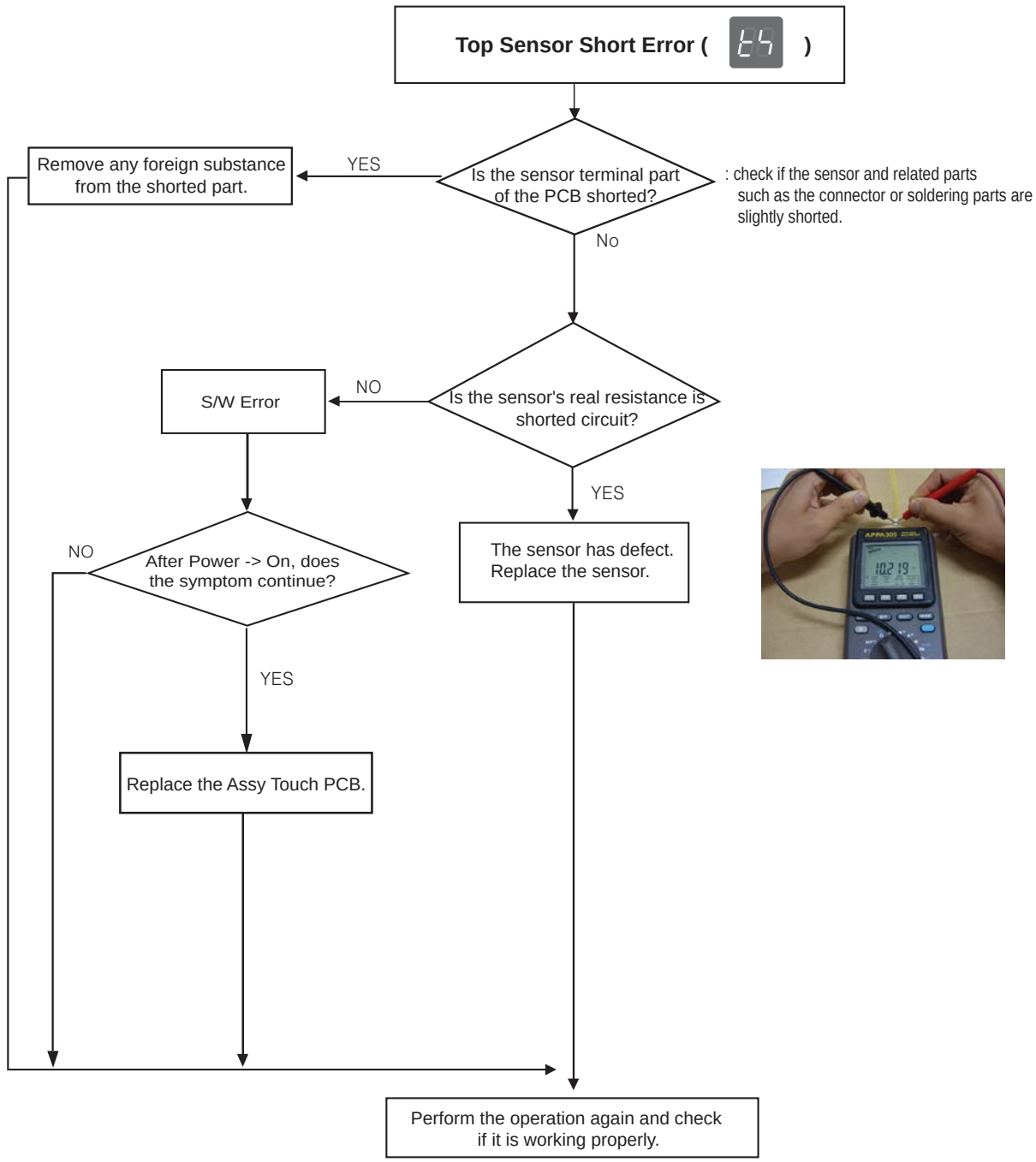
Error Code	Gerneral Function	Solution	Page
SE	Touch Button Short Error	It occurs when the control panel's sensor field is shorted more than 10 seconds. ex: No.1 Place a damp cloth on the control panel. No.2 Liquid boils over and lands on the control panel. No.3 More than one key is pressed more than 10 seconds. No.4 Defective Assy-Touch PCB	55 Page
LE	Low Voltage Error	It occurs when the DC 12V is dropped under 9V. It may occurs due to defects of PCB or wiring.	56 Page
ot	Over Temperature Error	It occurs when the temperature of the Top Sensor rises very highly. (Estimated temperature of ceramic glass's surface is more than 250˚C.) ex: Place a empty cookware on the burner and operate the induction cooktop.	57 Page
P	Pan Detection Error	It occurs when the cookware is unsuitable or too small or no cook-ware has been placed on the cooking zone. If the suitable cookware is placed again, the induction cooktop will operate normally.	58 Page
FL	DC Motor Locking Error	It occurs when the DC Motor cannot operate due to defects of PCB, wiring or some disturbance on motor blade.	59 Page

Error Code	Gerneral Function	Solution	Page
E-84	cooktop to Oven	Cause 1. Instantaneous electrical noise affect micom signal. After re-connecting power plug, can use normally. Cause 2. Power plug of 120V is loosely connected with outlet.→ Cooktop display use 240V(L1&L2), and Oven display use 120V(L&N) If Oven have no power, Cooltop display will show this error code. Check your power plug pin & outlet. Cause 3 : IGBT of inverter pcb , check the registance of IGBT. When IGBT short or open , have to change Inverter PCB. Cause 4 : LVT of oven pcb is damaged or LVT connector is disconnected. → RE-connect LVT connector or replace oven main PCB.	60 Page
E-85	Touch signal not entered.	Cause 1. Communication wire harness is loosely connected with connector . → Check the wire harness connection Cause 2 . Touch film tail is not insert fully. → check the touch film tail at left and right side connector.	61 Page
CE88	UART communi-caton Error	Cause 1. Did not get a communication signal between each channel of inverter pcb. check the inverter PCB wire harness or registance value of IGBT (short or open) → replaced wire harness or inverter pcb Cause 2. LVT of oven pcb is damaged or LVT connector is disconnected. → RE-connect LVT connector or replace oven main PCB.	62 Page
CE00	Communication Error	It occurs when Touch IC can't communicate with each inverter channel. (channel : 00~03)	62 Page
CE11		It occurs when Touch IC can't communicate with pcb sub.	62 page

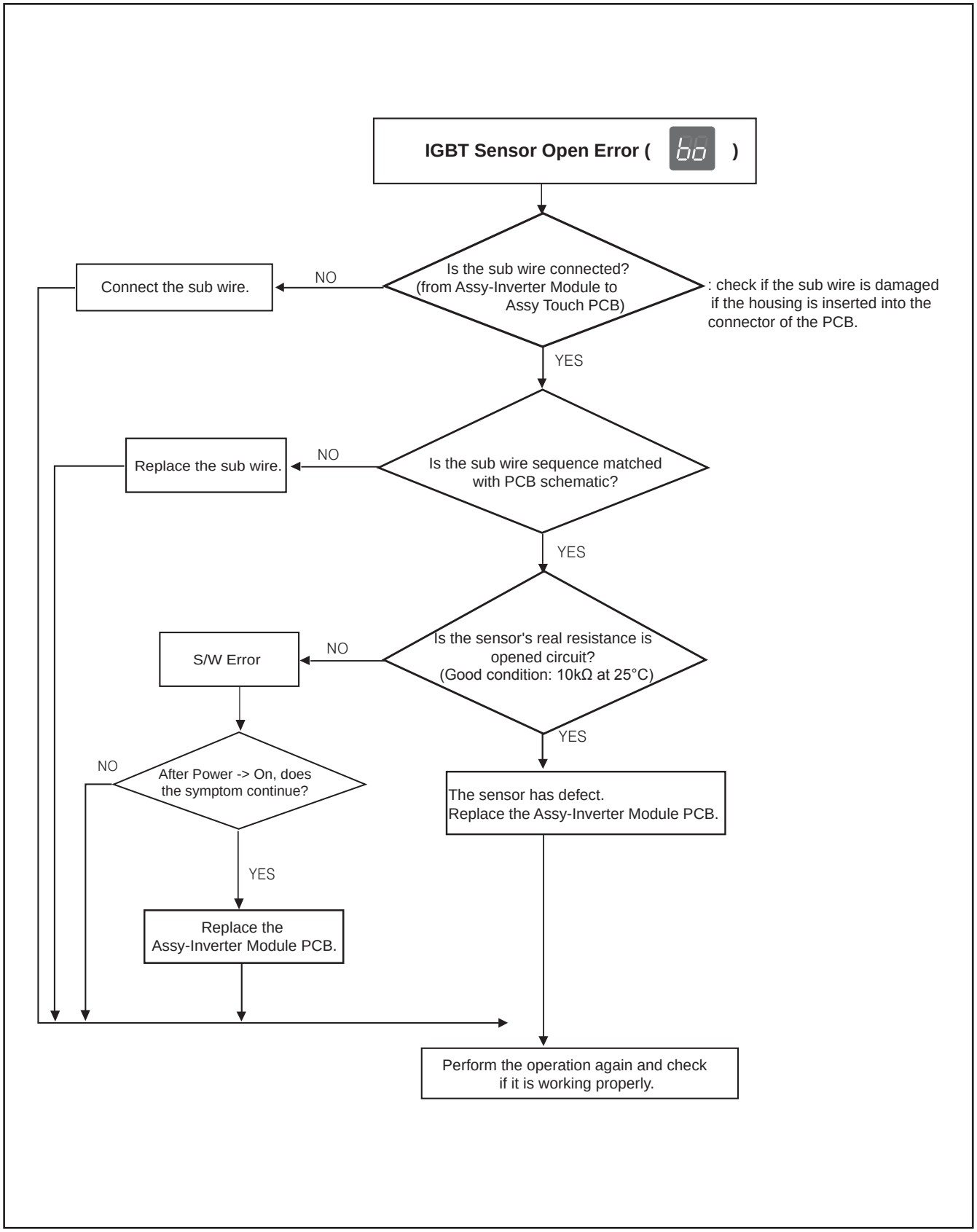
4-1-3 tO


Top Sensor Open Error (tO)
Is the sensor connected?
NO
Connect the sensor.
Replace the wire.
: check if the sensor wire is damaged, if the sensor housing is inserted into the connector of the PCB.
YES
Is the sensor wire connected properly by burner position?
NO
Connect the wire properly.
YES
Is the sensor's real resistance is opened circuit?
NO
S/W Error
YES
The sensor has defect.
Replace the sensor.
After Power -> On, does the symptom continue?
NO
YES
Replace the Assy Touch PCB.
Perform the operation again and check if it is working properly.

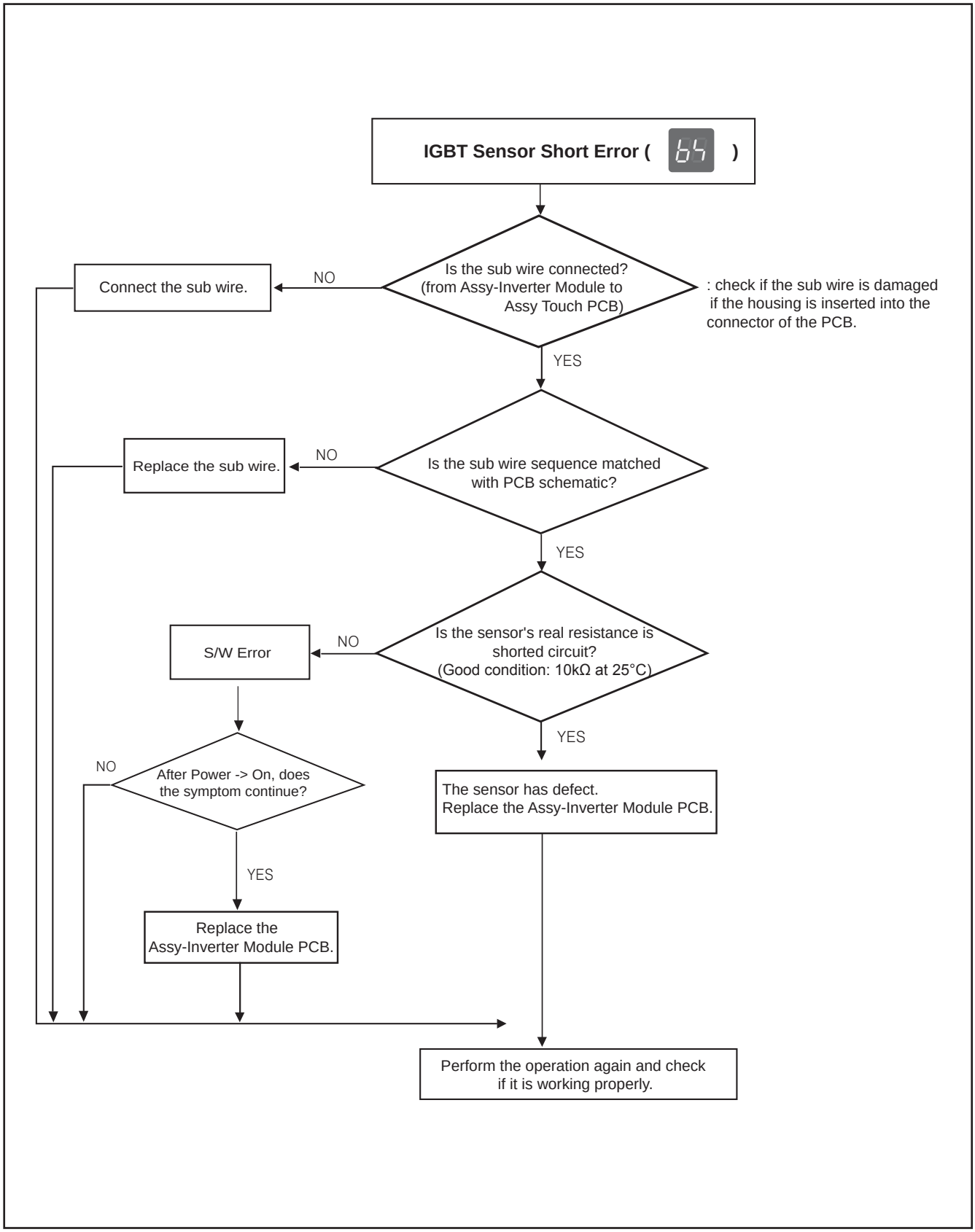
4-1-4 t4


Top Sensor Short Error (t4)
Is the sensor terminal part of the PCB shorted?
YES
Remove any foreign substance from the shorted part.
: check if the sensor and related parts such as the connector or soldering parts are slightly shorted.
No
Is the sensor's real resistance is shorted circuit?
NO
S/W Error
YES
The sensor has defect. Replace the sensor.
After Power -> On, does the symptom continue?
NO
YES
Replace the Assy Touch PCB.
Perform the operation again and check if it is working properly.

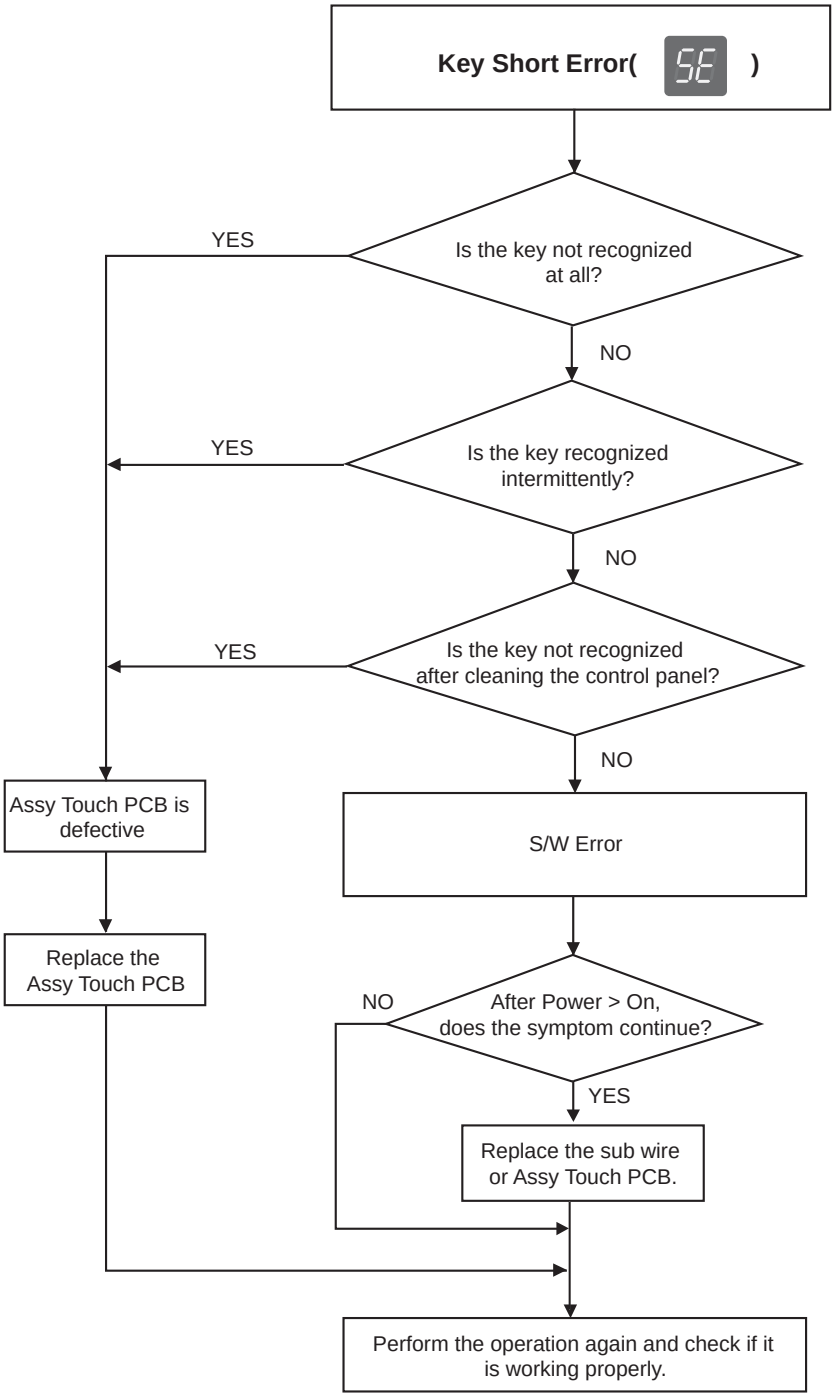
4-1-5 bb


IGBT Sensor Open Error (bb)
Is the sub wire connected? (from Assy-Inverter Module to Assy Touch PCB)
: check if the sub wire is damaged if the housing is inserted into the connector of the PCB.
NO
Connect the sub wire.
YES
Is the sub wire sequence matched with PCB schematic?
NO
Replace the sub wire.
YES
Is the sensor's real resistance is opened circuit? (Good condition: 10kΩ at 25°C)
NO
S/W Error
YES
After Power -> On, does the symptom continue?
NO
YES
Replace the Assy-Inverter Module PCB.
The sensor has defect. Replace the Assy-Inverter Module PCB.
Perform the operation again and check if it is working properly.

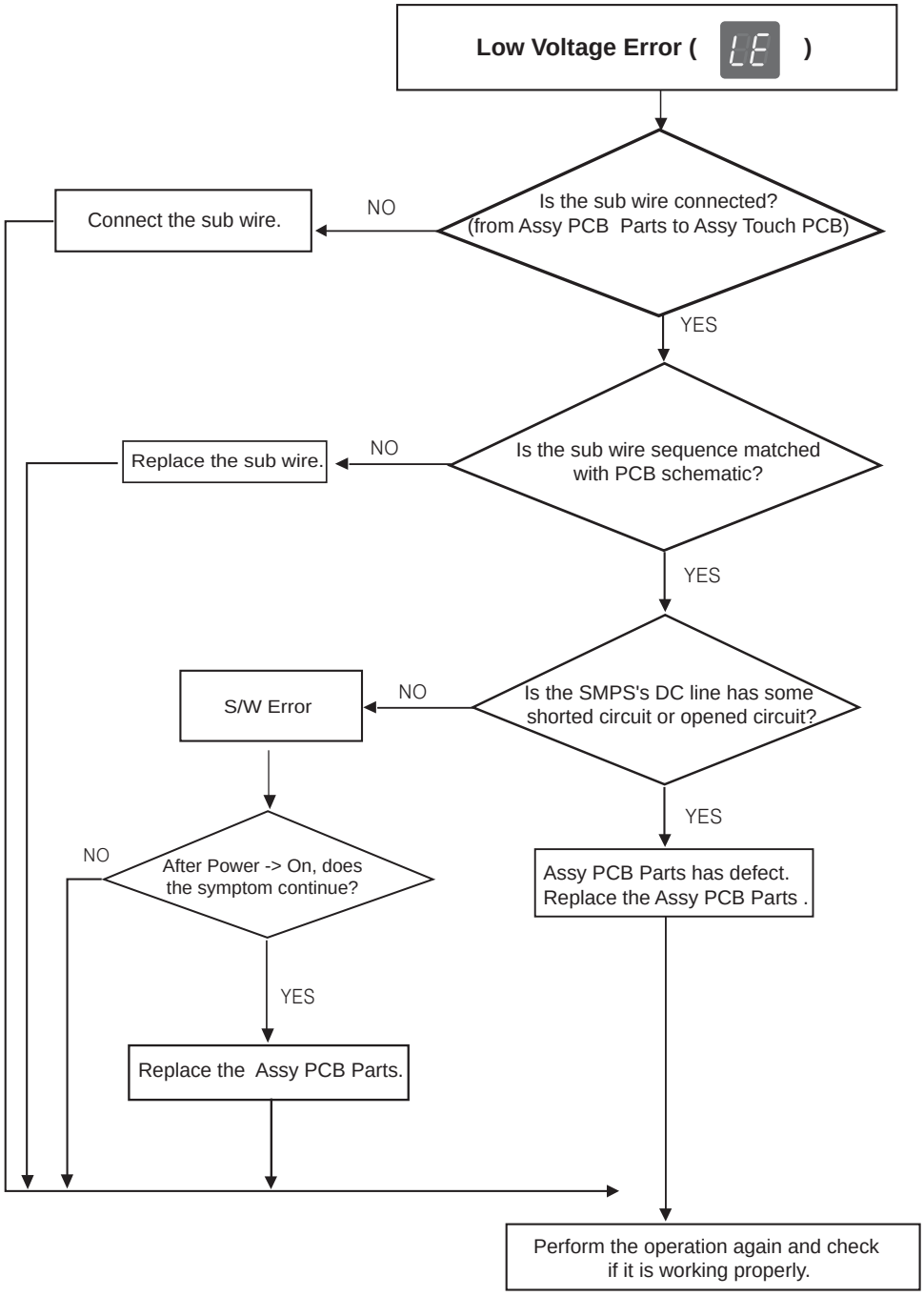
4-1-6 b4


IGBT Sensor Short Error (b4)
Is the sub wire connected? (from Assy-Inverter Module to Assy Touch PCB)
: check if the sub wire is damaged if the housing is inserted into the connector of the PCB.
NO
Connect the sub wire.
YES
Is the sub wire sequence matched with PCB schematic?
NO
Replace the sub wire.
YES
Is the sensor's real resistance is shorted circuit? (Good condition: 10kΩ at 25°C)
NO
S/W Error
YES
The sensor has defect. Replace the Assy-Inverter Module PCB.
After Power -> On, does the symptom continue?
NO
YES
Replace the Assy-Inverter Module PCB.
Perform the operation again and check if it is working properly.

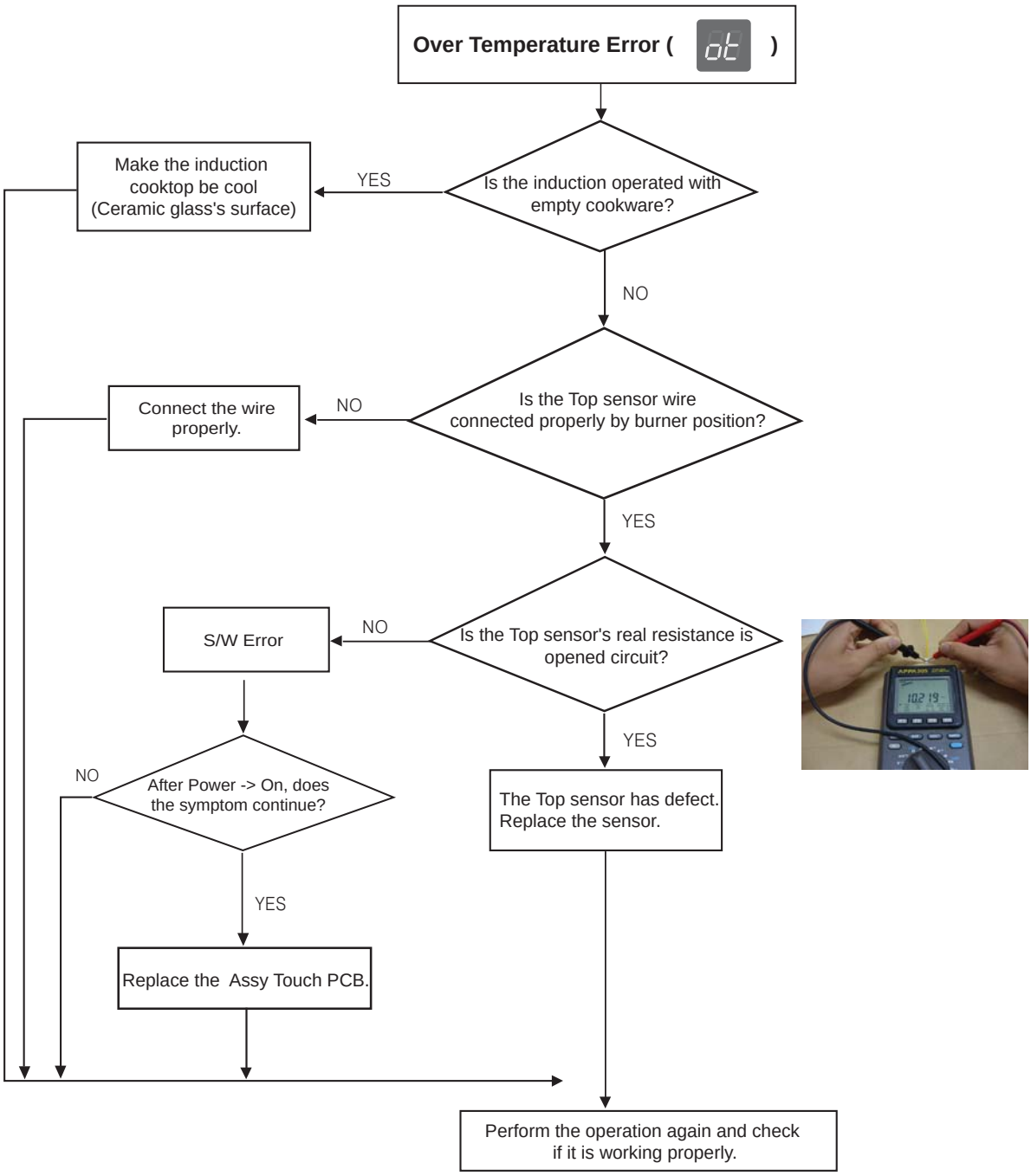
4-1-7 SE


Key Short Error(SE)
Is the key not recognized at all?
YES
NO
Is the key recognized intermittently?
YES
NO
Is the key not recognized after cleaning the control panel?
YES
NO
Assy Touch PCB is defective
Replace the Assy Touch PCB
S/W Error
After Power > On, does the symptom continue?
NO
YES
Replace the sub wire or Assy Touch PCB.
Perform the operation again and check if it is working properly.

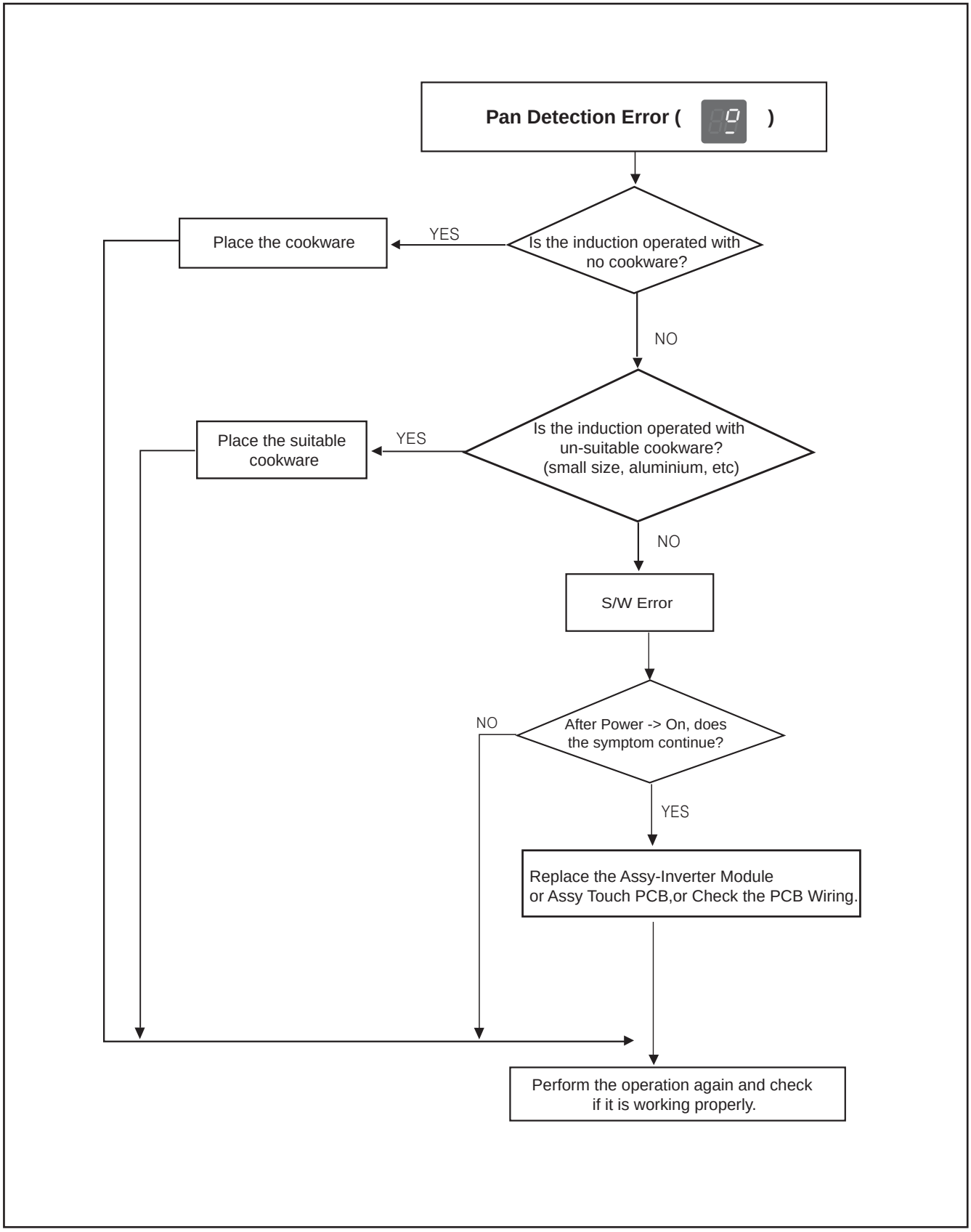
4-1-8 LE


Low Voltage Error (LE)
Is the sub wire connected?
(from Assy PCB Parts to Assy Touch PCB)
NO
Connect the sub wire.
YES
Is the sub wire sequence matched
with PCB schematic?
NO
Replace the sub wire.
YES
Is the SMPS's DC line has some
shorted circuit or opened circuit?
NO
S/W Error
YES
Assy PCB Parts has defect.
Replace the Assy PCB Parts .
After Power -> On, does
the symptom continue?
NO
YES
Replace the Assy PCB Parts.
Perform the operation again and check
if it is working properly.

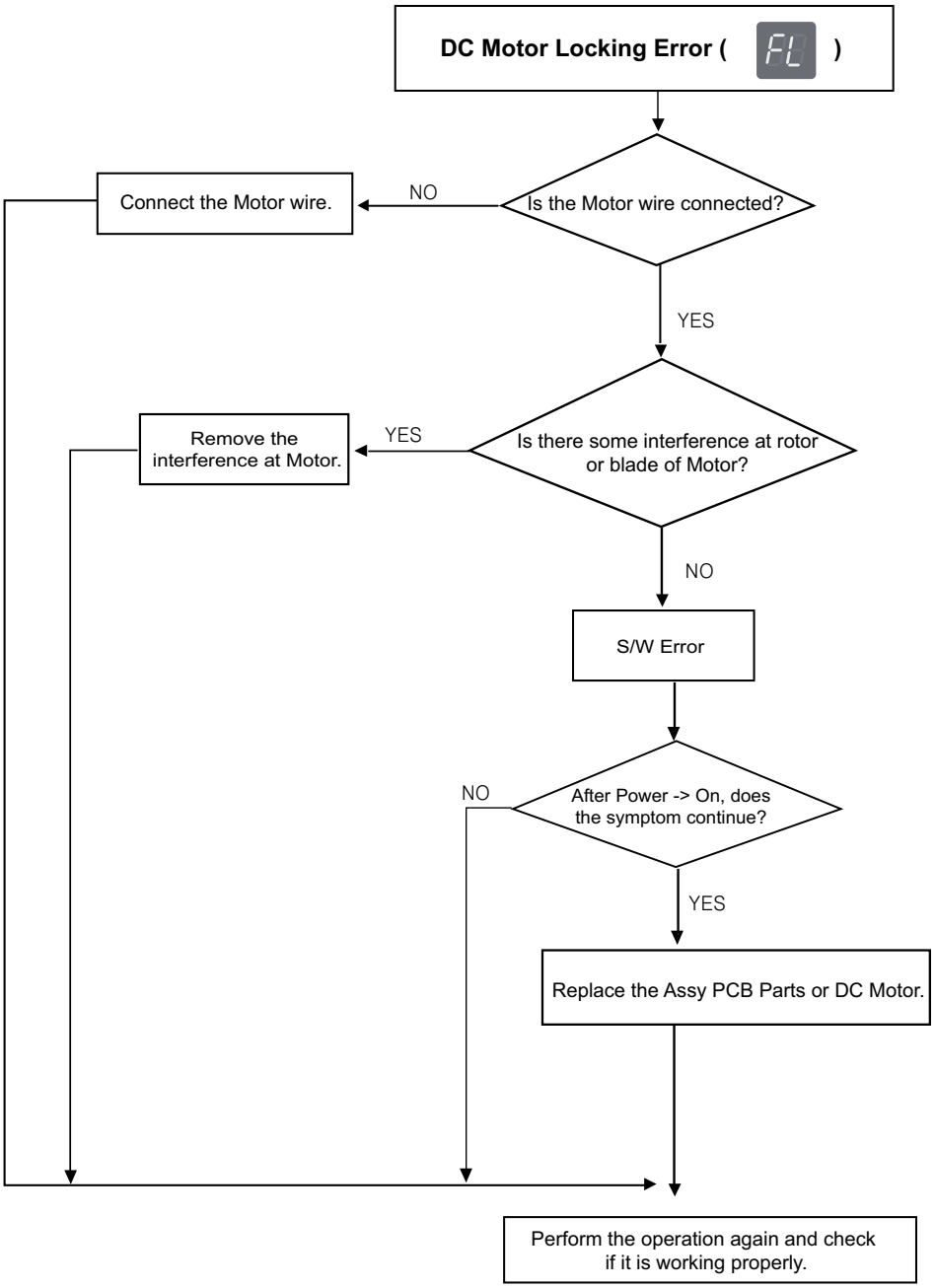
4-1-9 ot


Over Temperature Error (ot)
Is the induction operated with empty cookware?
YES
Make the induction cooktop be cool (Ceramic glass's surface)
NO
Is the Top sensor wire connected properly by burner position?
NO
Connect the wire properly.
YES
Is the Top sensor's real resistance is opened circuit?
NO
S/W Error
YES
The Top sensor has defect. Replace the sensor.
After Power -> On, does the symptom continue?
NO
YES
Replace the Assy Touch PCB.
Perform the operation again and check if it is working properly.

4-1-10


Pan Detection Error ( )
Is the induction operated with no cookware?
YES
Place the cookware
NO
Is the induction operated with un-suitable cookware? (small size, aluminium, etc)
YES
Place the suitable cookware
NO
S/W Error
After Power -> On, does the symptom continue?
NO
YES
Replace the Assy-Inverter Module or Assy Touch PCB,or Check the PCB Wiring.
Perform the operation again and check if it is working properly.

4-1-11 FL


DC Motor Locking Error (FL)
Is the Motor wire connected?
NO
Connect the Motor wire.
YES
Is there some interference at rotor or blade of Motor?
YES
Remove the interference at Motor.
NO
S/W Error
After Power -> On, does the symptom continue?
NO
YES
Replace the Assy PCB Parts or DC Motor.
Perform the operation again and check if it is working properly.

4-1-12 E-84

Troubleshooting(E-84)

Communication Error "Cooktop to Oven" (E-84)

Check terminal block voltage. (240V,60Hz)

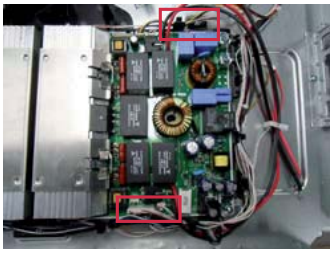
NO → Check the circuit breaker. Check the terminal block connections.

YES ↓

Check the wiring. (status of wiring connection)

NO → Replace or Repair the wiring.

YES ↓



Check the voltage of PCB , SMPS
- Input : 240V (L1.L2)
- Output (inverter pcb R)
  - : 12V (CN101 , 8 pin)
  - : 5 V (CN101 , 6 pin)

NO → Check the Fuse connected on Inverter PCB.

YES → Replace the defected PCB.

NO → Replace the fuse.

4-1-13 E-85

Troubleshooting(E-85)

Communication error " touch signal"
(E-85)

Check terminal block voltage.
(240V,60Hz)

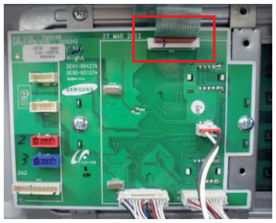
NO → Check the circuit breaker.
Check the terminal block connections.

YES

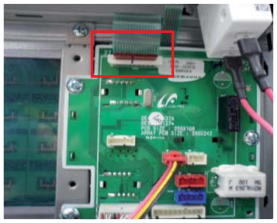
Check the wiring and touch
film connection.
(status of wiring connection)

NO → Replace or Repair the wiring.

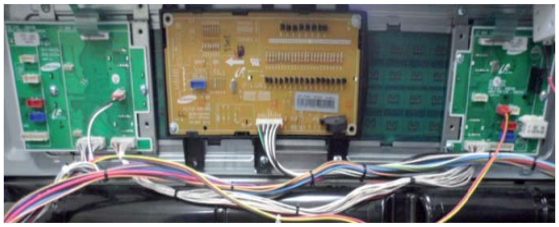
YES



LEFT TOUCH PCB

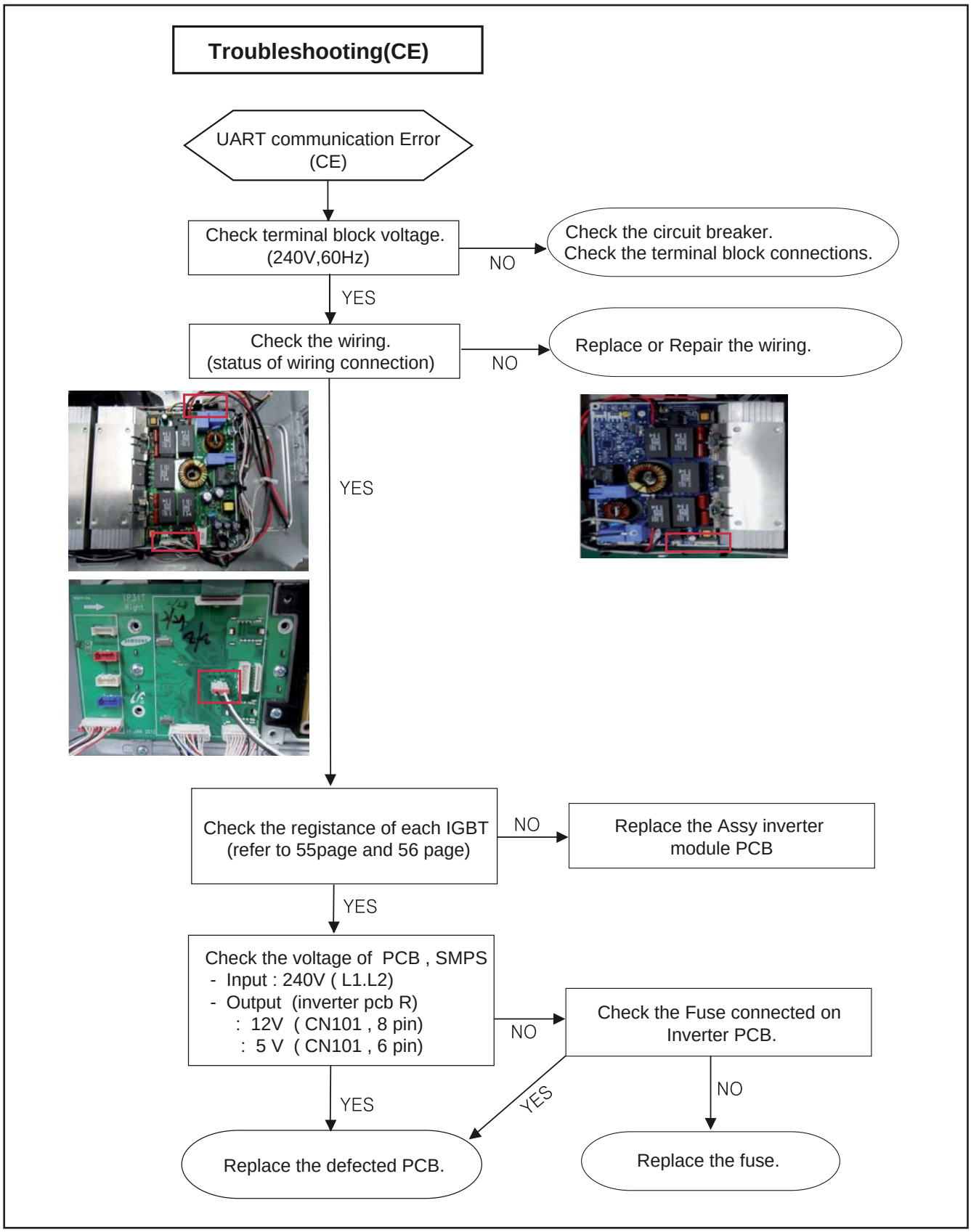


RIGHT TOUCH PCB

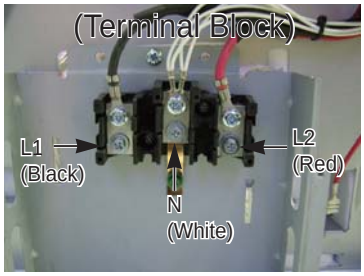


Replace the defected PCB.

4-1-14 CE


Troubleshooting(CE)
UART communication Error (CE)
Check terminal block voltage. (240V,60Hz)
NO
Check the circuit breaker. Check the terminal block connections.
YES
Check the wiring. (status of wiring connection)
NO
Replace or Repair the wiring.
YES
Check the registance of each IGBT (refer to 55page and 56 page)
NO
Replace the Assy inverter module PCB
YES
Check the voltage of PCB , SMPS
- Input : 240V (L1.L2)
- Output (inverter pcb R)
: 12V (CN101 , 8 pin)
: 5 V (CN101 , 6 pin)
NO
Check the Fuse connected on Inverter PCB.
YES
YES
NO
Replace the defected PCB.
Replace the fuse.

4-2 Electrical Malfunction



L1 ⟷ L2 : 240V
L1 ⟷ N : 120V
L2 ⟷ N : 120V

No power
or
No display

*Check terminal block voltage.
AC 240V/120V or AC208V/120V

No → * Reset the circuit breaker or check main power. → END

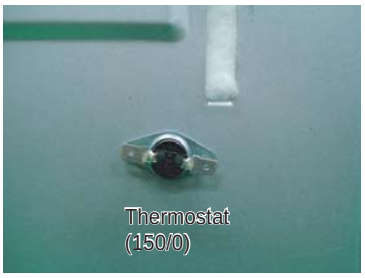
Yes

*Thermostat open check. (150°c / 0°c)

No → * replace Thermostat.

Yes

*Check the pin voltage of connector (CN01) on Main PCB.
(Input voltage : 120V)



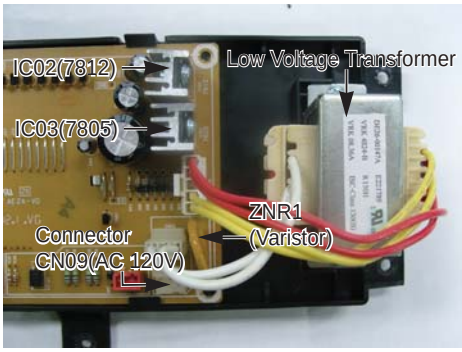
Yes

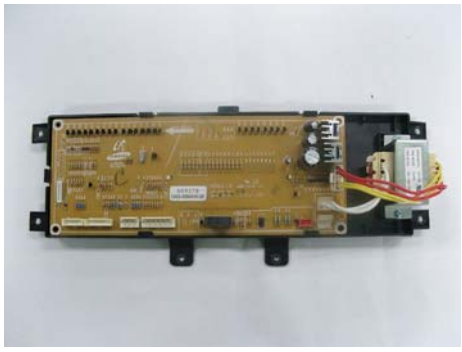
* Check the Low voltage Transformer

No → **Reconnect and replace or repair harness is damaged → END

Check whether varistor(ZNR1) on main PCB has been damaged.

Yes → * replace Main PCB.





4-2 Electrical Malfunction

* Measure resistance and voltage of Low voltage Transformer (please refer to Fig.1)

Fig.1 : Low voltage Transformer

No	color	voltage	resistance
Primary	white	120V (input)	75 ~ 80Ω
Secondary 1	red	13.5V	1.5 ~ 2.5Ω
Secondary 2	yellow	8V	0.8V ~ 1.5Ω

*Check whether primary resistance of Low voltage Transformer is in normal.

No → *Thermal Fuse with built-in Low voltage Transformer will be open if resistance is more than MΩ.

Yes → * Replace Low Voltage Transformer → END

Ok ↓

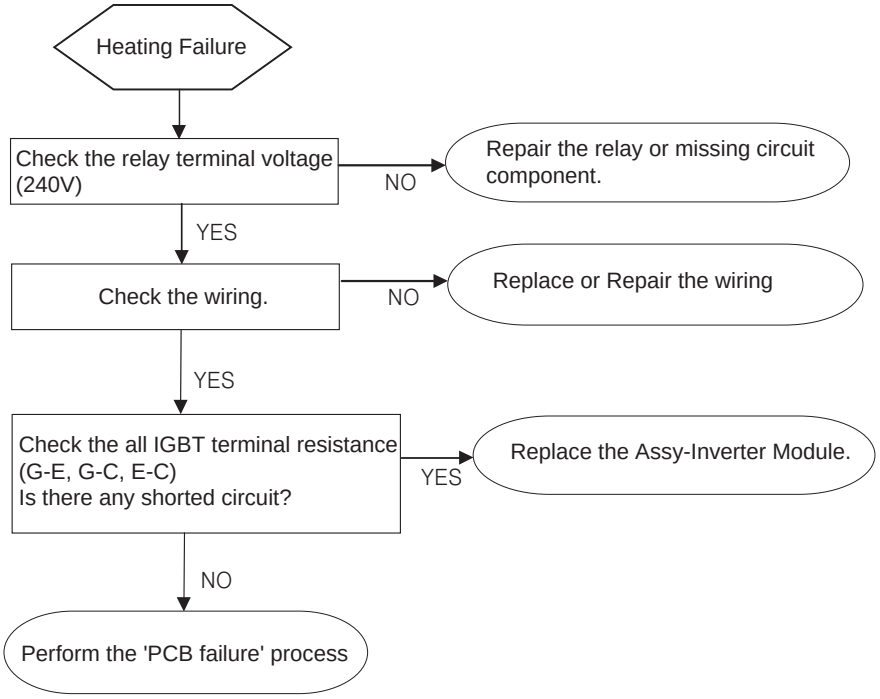
*Measure voltage of voltage Regulator on main PCB.
IC02(7812) : DC 12V
IC03(7805) : DC 5V

Ok ↓

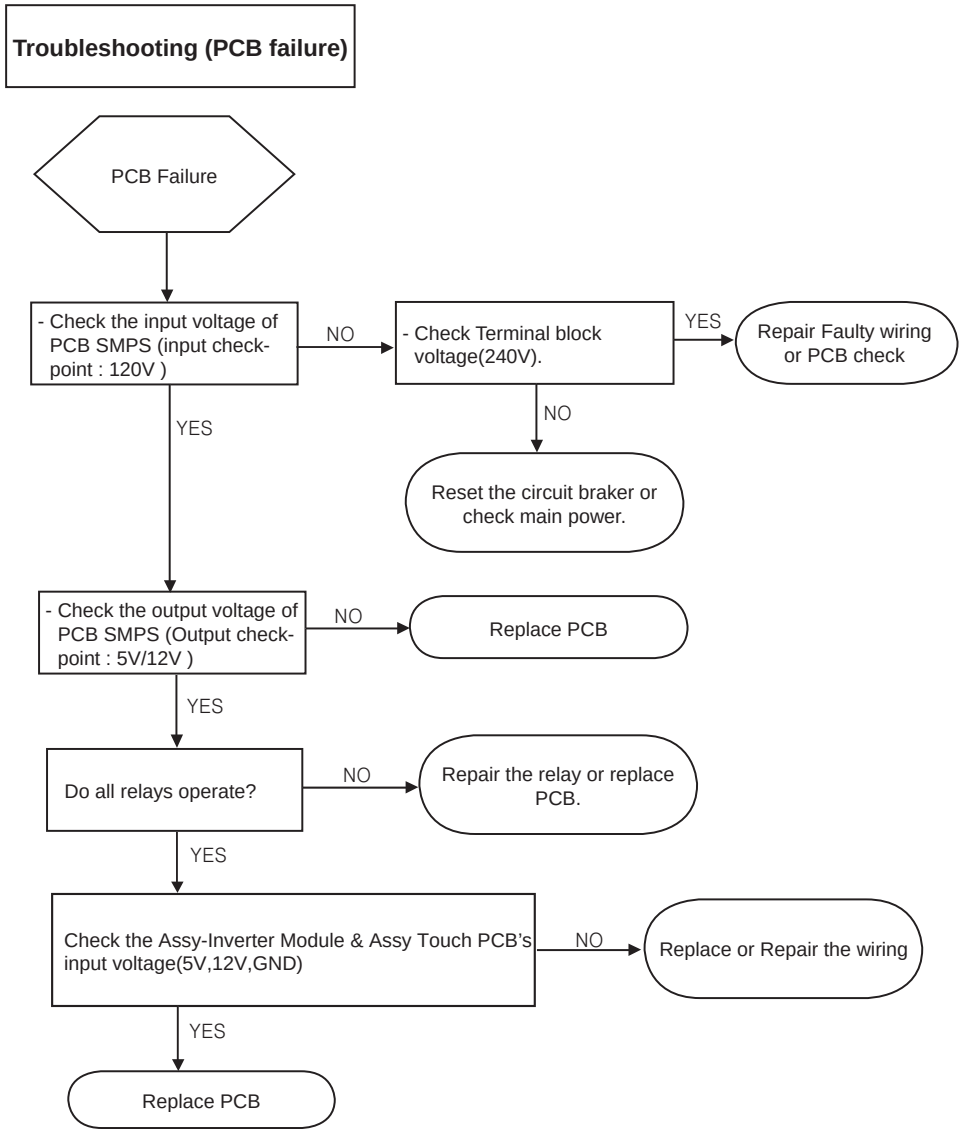
* Replace Main PCB. → END

4-2 Electrical Malfunction

Troubleshooting (Heating)



4-2 Electrical Malfunction

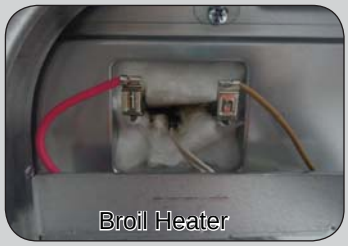


4-2 Electrical Malfunction

Component testing procedures

WARNING

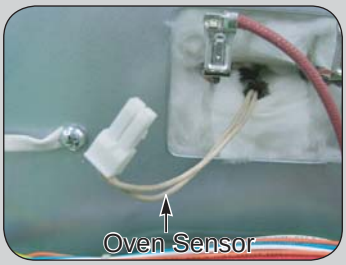
ELECTRICAL SHOCK HAZARD
Disconnect power before servicing the range. Replace all panels before operating range.
Failure to do so can result in death or electrical shock.

FIGURE	TESTS MEASURE	RESULTS
 Broil Heater	* Measure resistance values of heater's terminal after taking off harness from heater. * Measure voltage of heater's terminal after making oven work by pressing broil keypad.	* Approx : 13 ~ 16Ω (at the room temperature) * Terminal voltage of Broil heater : AC 240V * Replace or repair harness * Replace or repair sub PCB
Bake Heater	* Measure resistance values of heater's terminal after taking off harness from heater. * Measure voltage of heater's terminal after making oven work by pressing bake keypad. (Make sure that voltage has to be measured for more than 1 minute because heater is supposed to on-off cycling work.)	* Approx : 26 ~ 30Ω (at the room temperature) * Terminal voltage of bake heater : AC 240V * Replace or repair harness * Replace or repair sub PCB
Convection Heater	* Measure the resistance values of heater's terminal after taking off harness from heater. * Measure the voltage of heater's terminal after having oven worked, by pressing convection bake keypad. (Make sure that voltage has to be measured for more than 1 minute because heater is supposed to on-off cycling work.)	* Approx : 70 ~ 73Ω(at the room temperature) * Terminal voltage of convection heater : AC 240V * Replace or repair harness * Replace or repair sub PCB
Drawer Heater	* Measure the resistance of values of heater, after taking off harness from heater. * Measure the terminal voltage of heater after making oven work by pressing warming drawer keypad.	* Approx : 22 ~ 25Ω (at the room temperature) * Terminal voltage of Drawer heater : AC 120V * Replace or repaire harness * Replace or repaire sub PCB

4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
Door Lock	* Measure the state of micro switch and motor after taking off harness from the heater. * Check whether the lock works normally by pressing cooking time button and delay start keypad at the same time for 3 seconds.	* Lock motor Resistance : 1750 ~ 1850Ω (at the room temperature) voltage : 120V * Micro switch COM-NO * Replace or repair if harness has been loosen or disconnected.
Oven Lamp Socket	* First of all, make sure that lamp filament is disconnected or not. * Measure resistance socket's terminal after separating harness from heater and removing lamp. * Measure the voltage at the lamp sockets terminal, after turning on the Lamp by pressing the Oven light on the main keypad.	* Approx : ∞ Ω * Terminal voltage of lamp socket : 120V * Replace or repair harness. * Replace or repair sub PCB
Convection Fan Sub Fan(Upper) Sub Fan(Lower)	* Measure the resistance value of Motor terminal after taking off harness from Motor. * Measure Voltage of Motor's terminal after turning the oven on by pressing bake keypad. (Make sure that voltage has to be measured for more than 1 minute because Fan is supposed to cycle on and off.)	**Approx** * Convection Fan : 20 ~ 30Ω * Sub Fan : 85 ~ 100Ω* (Upper, Lower) * Terminal Voltage of Convection Fan and Sub Fan : 120V * Replace or repair harness * Replace or repair Sub PCB

4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
Low Voltage Transformer	* Measure resistance of Primary and secondary coil. * Measure secondary voltage. * Make sure whether connector or wire of low voltage transformer has been damaged or not.	**Approx** Primary coil(white) : 75 ~ 80Ω secondary coil : Red : 1.8~2.2Ω, AC 13.5V yellow: 0.8~1.2V, AC 8V * Replace or repair if wire of connector has been damaged.
Door plunger switch	* Check the state of working of switch. * Make sure whether wire, housing and terminal is connected with switch has been damaged or not.	Nomal open : 0Ω Nomal close : ∞Ω * Replace or repair if wire or terminal has been damaged.
 Oven Sensor	* Check whether the resistance values of oven sensor is same with a chart's one. * Check whether wire or housing has been loosen or disconnected.	**Approx.** at the room temperature :1080Ω

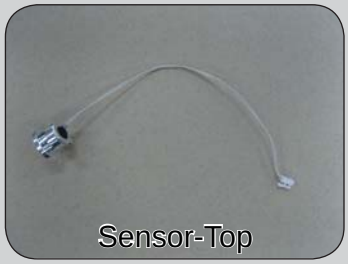
4-2 Electrical Malfunction

Oven sensor resistance (Temperature vs. Sensor resistance)

Ro = 1000 Ohms (0˚C), RP = 2757 Ohms, Up = 5V, a = 0.00375

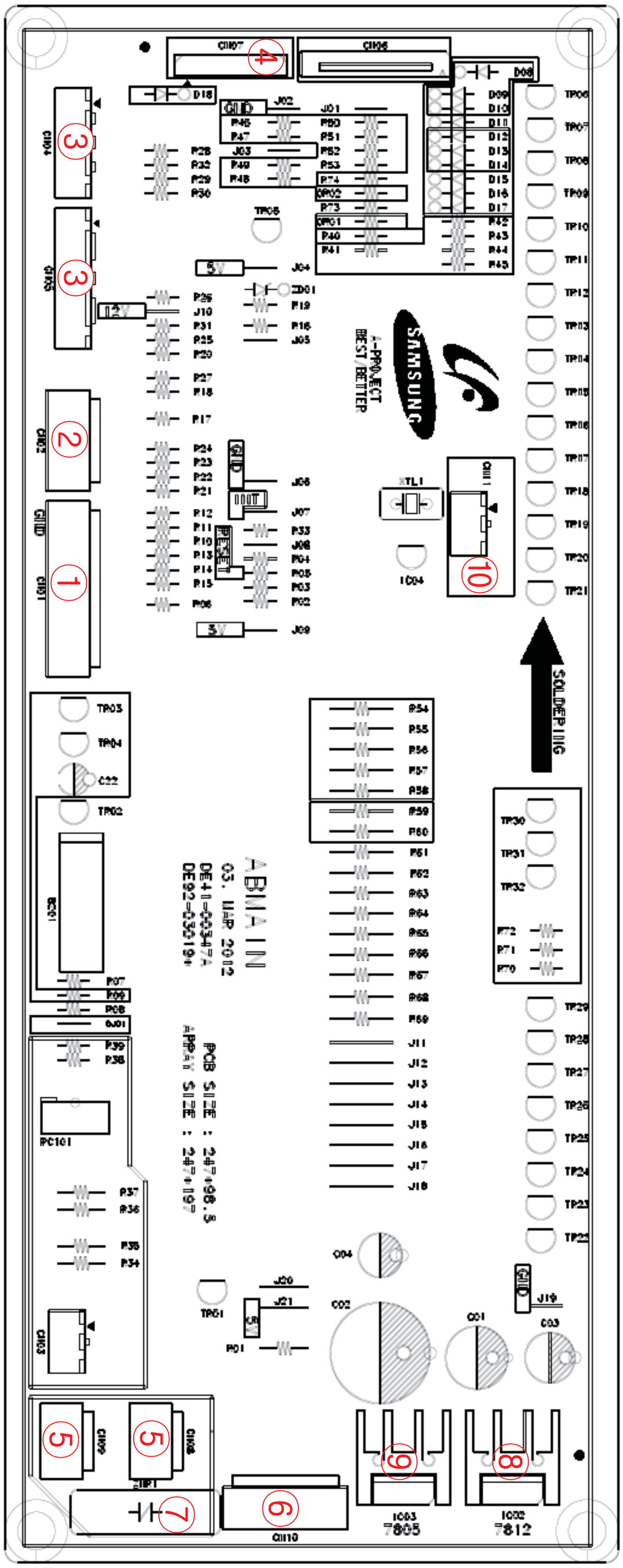
degree F	degree C	ohms	degree F	degree C	ohms
0	-17.8	932.12	113	45	1170.17
14	-10	961.86	122	50	1188.93
23	-5	980.95	212	100	1374.93
32	0	1000.00	302	150	1558.01
41	5	1019.02	392	200	1738.06
50	10	1038.02	482	250	1915.39
59	15	1056.99	572	300	2089.69
68	20	1075.92	662	350	2261.07
77	25	1094.83	752	400	2429.52
86	30	1113.71	842	450	2595.05
95	35	1132.56	932	500	2757.65
104	40	1151.38	1000	538	2878.57

4-2 Electrical Malfunction

FIGURE	TESTS MEASURE	RESULTS
 Sensor-Top	* Check whether the resistance values of sensor are correct. * Check whether wire or housing has been loosen or disconnected.	**Approx** * at the room temperature :7.65KΩ ~ 9.34KΩ
Coil-Working	* Check whether the resistance values are correct.	**Approx** * at the room temperature :0.01~1Ω

5-1 PCB Diagrams (Main)

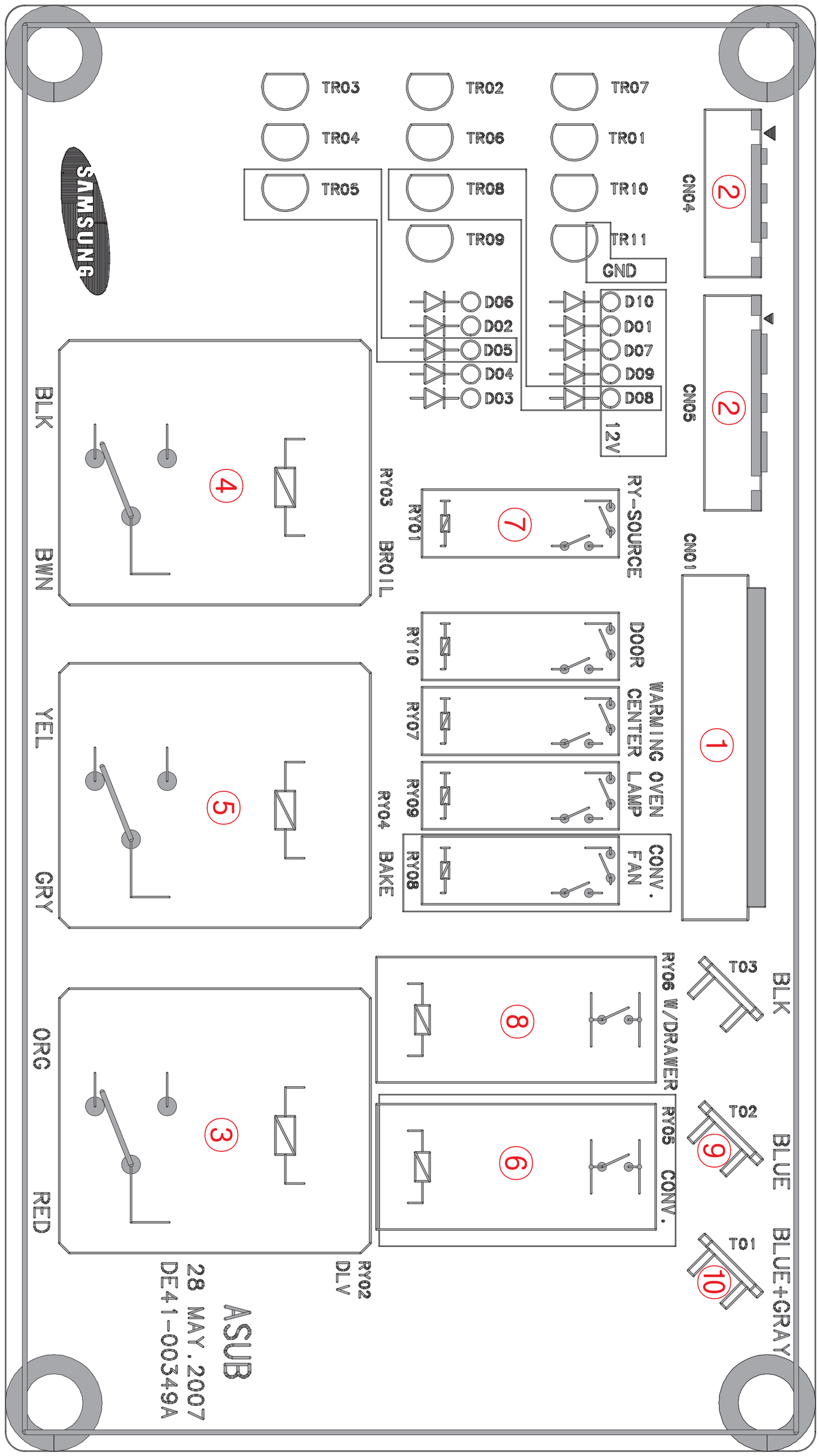
(This Document can not be used without Samsung's authorization)



No.	Parts Number	Part Name	Function and Rule
1	CN01	Door plunger switch, cooktop warming center, oven lamp and relay of convection fan connector	This is connector which is connected with Door plunger switch and Door lock switch. (COM-NO, COM-NC)
2	CN02	Oven sensor Connector	This is connector which is connected with oven sensor.
3	CN04, CN05	Relay connector	This connector is to get all operating of relay on sub PCB to be connected.
4	CN07	Keypad Connector	This is consisted of 15 pin and take a role of getting a cable on keypad to connect with touch PCB.
5	CN08, CN09	A Terminal for connecting with SMPS Power Supply	This is to supply power with primary on Low voltage transformer, and AC120V with main PCB through harness. It won't be problem even though CN08 and CN09 has been changed when you insert housing.
6	CN10	A Terminal for connecting with a small-sized RELAY Power Supply	This is connector which take a role of supplying secondary voltage of Low voltage transformer with main PCB.
7	ZNR1	Varistor	This is the element to protect main PCB, getting varistor to work if over voltage is supplied with varistor.
8	IC02	DC 12V IC	This is to supply DC12V with main PCB by voltage regulator.
9	IC03	DC 5V IC	This is to supply DC5V with main PCB by voltage regulator.
10	CN11	Communication with Cook-top Connector	This is connector which is detect operating of Cook-top

5-2 PCB Diagrams (Sub)

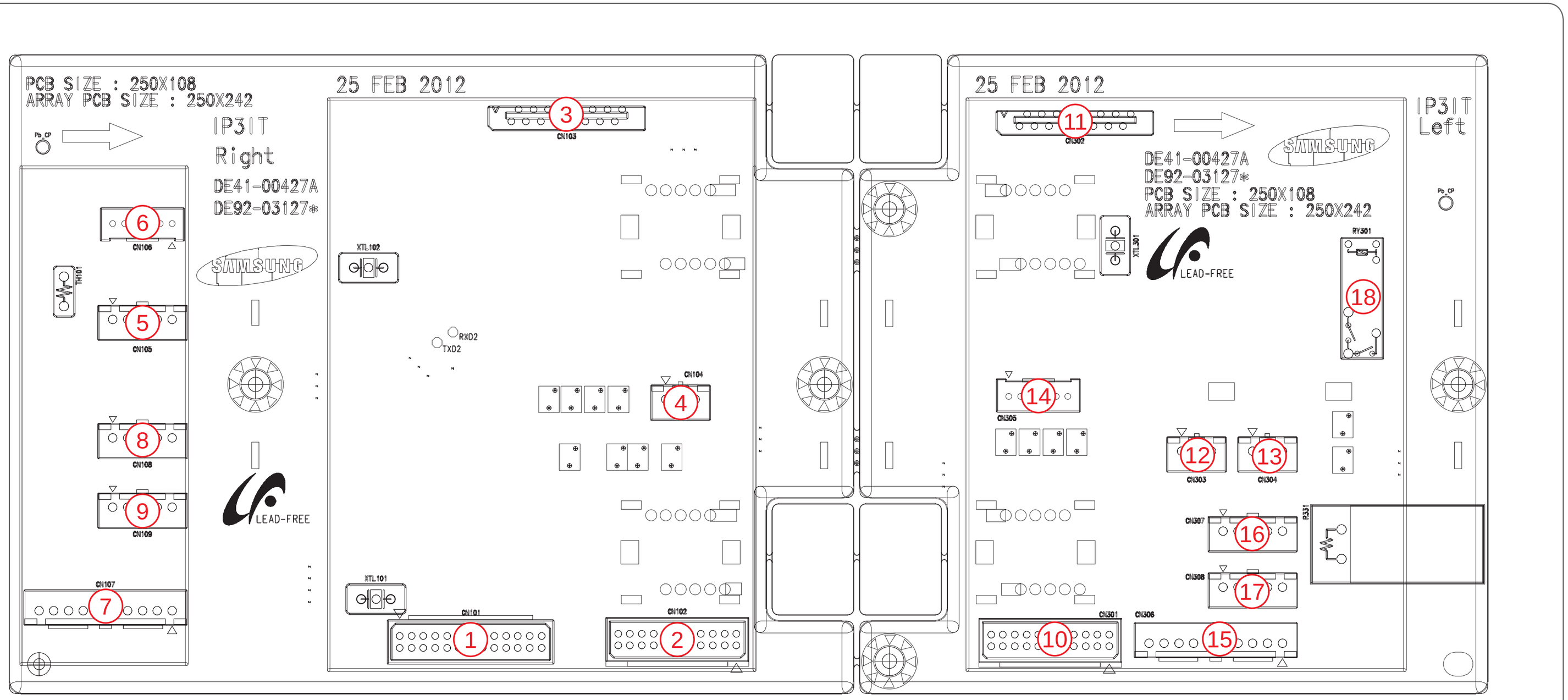
(This Document can not be used without Samsung's authorization)



No.	Parts Number	Part Name	Function and Rule
1	CN01	Door plunger switch, cooktop warming center, oven lamp and relay of convection fan connector	This is connector which is connected with Door plunger switch and Door lock switch. (COM-NO, COM-NC)
2	CN04, CN05	Relay connector	Connector(CN04,CN05) on sub PCB take a role of getting all of the operation of relay on sub PCB to connect with main PCB(CN04,CN05).
3	DLB relay(Ry02)	DLB Relay	Circuit is designed to have broil relay or convection relay worked after DLB relay is being worked by Double line break. (It will not be problem with reversing the order in insering Orange and Red)
4	Broil relay(Ry03)	Broil relay	Broil relay(Ry03), Bake relay(Ry04), convection relay(Ry05) will be on-off working by micom signal after DLB relay is worked.
5	Bake relay(Ry04)	Bake relay	(Broil relay : It will not be problem with reversing the order in insering Black and Brown) (Bake relay : It will not be problem with reversing the order in insering Yellow and Gray)
6	Convection relay(Ry05)	Convection relay	
7	RY-source relay(Ry01)	Source relay	This is consisted of 15 pin and take a role of getting a cable on keypad to connect with touch PCB.
8	W/Drawer Relay(Ry06) and T03 terminal	Warmer drawer terminal & Warmer drawer relay	This is terminal to connect harness with relay to get heater on warming drawer work.
9	T02 terminal	Convection terminal	This is the terminal to connect convection heater with convection relay.
10	T01 terminal	Live 1 Terminal	This is the terminal to supply L1 voltage(120V) with warming drawer relay(Ry06),convection relay(Ry05).

5-3 PCB Diagrams(Touch)

(This Document can not be used without Samsung's authorization)



No.	Parts Number	Part Name	Function and Rule
1	CN101	Inverter Connector	This is connector which connect Inverter module.
2	CN102	PCB's Right side Connector	This is connector which connect PCB's left side.
3	CN103	Right Touch film Connector	This consist of 16 pin and take a role of getting a cable on Touch Film to connect with Right touch PCB.
4	CN104	Oven communication Connector	This is connector which connect Oven.
5	CN105	Main MCU Writing Connector	This is connector for Main MCU writing.
6	CN106	Right Touch IC Writing Connector	This is connector for Right touch IC writing.
7	CN107	Right Inverter MCU Writing Connector	This is connector for Right Inverter MCU IC writing.
8	CN108	Right Inverter Front MCU Writing Connector	This is connector which is connected Inverter Right Front MCU for writing.
9	CN109	Right Inverter Rear MCU Writing Connector	This is connector which is connected Inverter Right RearMCU for writing.
10	CN301	PCB's Left side Connector	This is connector which is connected PCB's Right side.
11	CN302	Left Touch film Connector	This consist of 16 pin and take a role of getting a cable on Touch Film to connect with Left touch PCB.
12	CN303	Cook top-Fan motor Connector	This take a role of control of Cook-top Fan motor's Low mode.
13	CN304	Cook top-Fan motor Connector	This take a role of control of Cook-top Fan motor's Low mode.
14	CN305	Left IC Writing Connector	This is connector for Left touch IC writing.
15	CN306	Left Inverter MCU Writing Connector	This is connector for Left Inverter MCU IC writing.
16	CN307	Left Inverter Front MCU Writing Connector	This is connector which is connected Inverter Left Front MCU for writing.
17	CN308	Let Inverter Rear MCU Writing Connector	This is connector which is connected Inverter Left Rear MCU for writing.

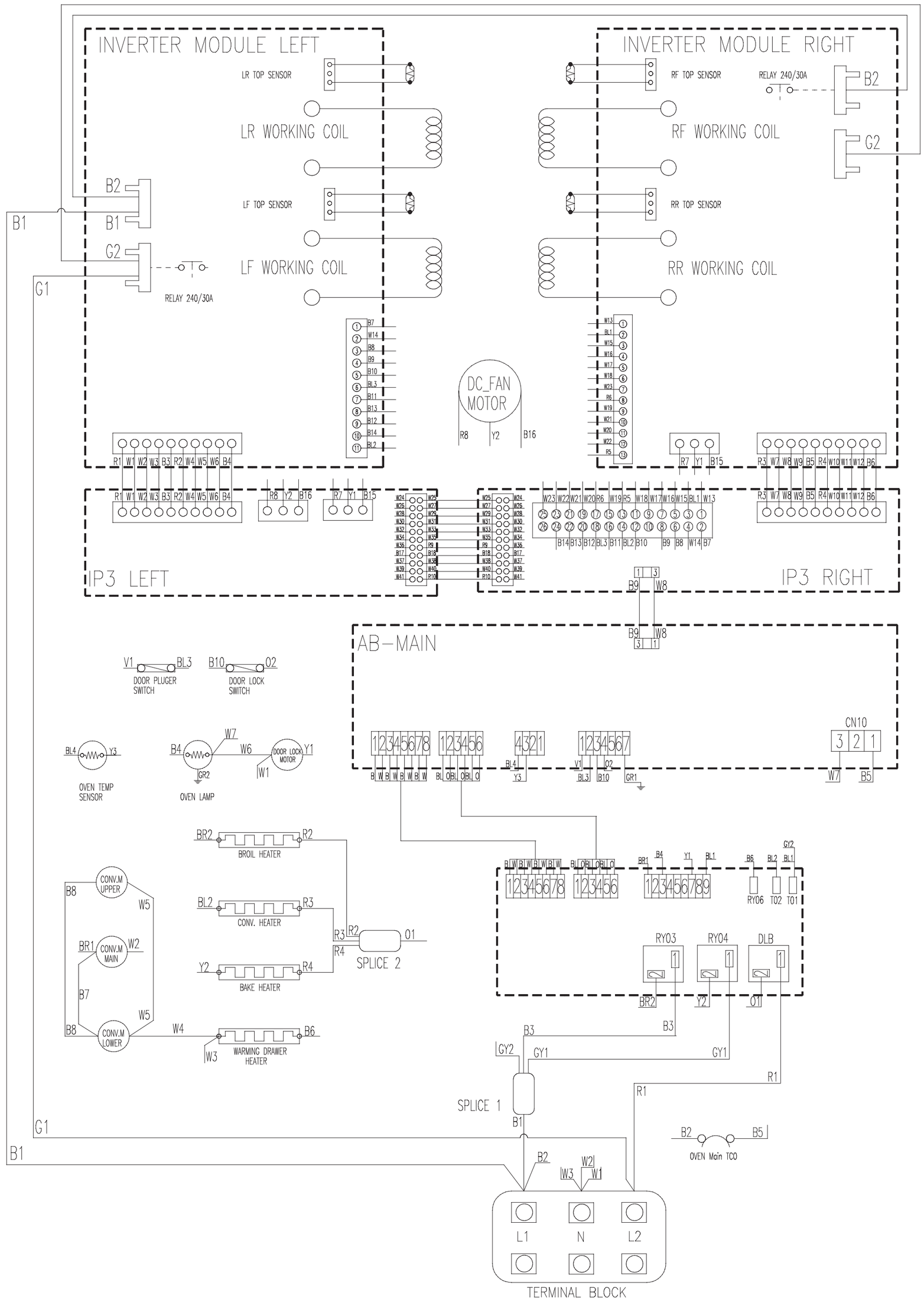
6-1 Wiring diagram

(This Document can not be used without Samsung's authorization)

NOTE
1)INPUT POWER : AC240V 60Hz, 13200W, 55.0A
1-1) OVEN HEATER : MAX 5000W, 25.0A
1-2) COOKTOP : MAX 7200W, 30A
2) OVEN DOOR OPENED AND UNLOCKED

WIRING DIAGRAM
MODEL: NE597N0PBSR/AA

COLOR		COLOR	
RED	R	ORANGE	O
WHITE	W	VIOLET	V
BLUE	BL	BLACK	B
YELLOW	Y	GRAY	GY
SKY	SK	GREEN	GR
BRN	BR		



HEATING ELEMENTS

INDUCTION ELEMENTS		
COMPONENTS	INPUT	WATTAGE
RF INDUCTION ELEMENT	240V	2300
RR INDUCTION ELEMENT	240V	1400
LF INDUCTION ELEMENT	240V	2000
LR INDUCTION ELEMENT	240V	1500

OVEN HEATING ELEMENTS		
COMPONENTS	INPUT	WATTAGE
BAKE	240V	2400W
BROIL	240V	3800W
CONVECTION	240V	800W
WARMING DRAWER	120V	600W

GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, CIS, Mideast & Africa	gspn1.samsungcsportal.com
Asia	gspn2.samsungcsportal.com
North & Latin America	gspn3.samsungcsportal.com
China	china.samsungportal.com

This Service Manual is a property of Samsung Electronics Co.,Ltd. Any unauthorized use of Manual can be punished under applicable International and/or domestic law.

© Samsung Electronics Co., Ltd. March. 2013
Printed in Korea